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WARSHIPS of WORLD WAR 1

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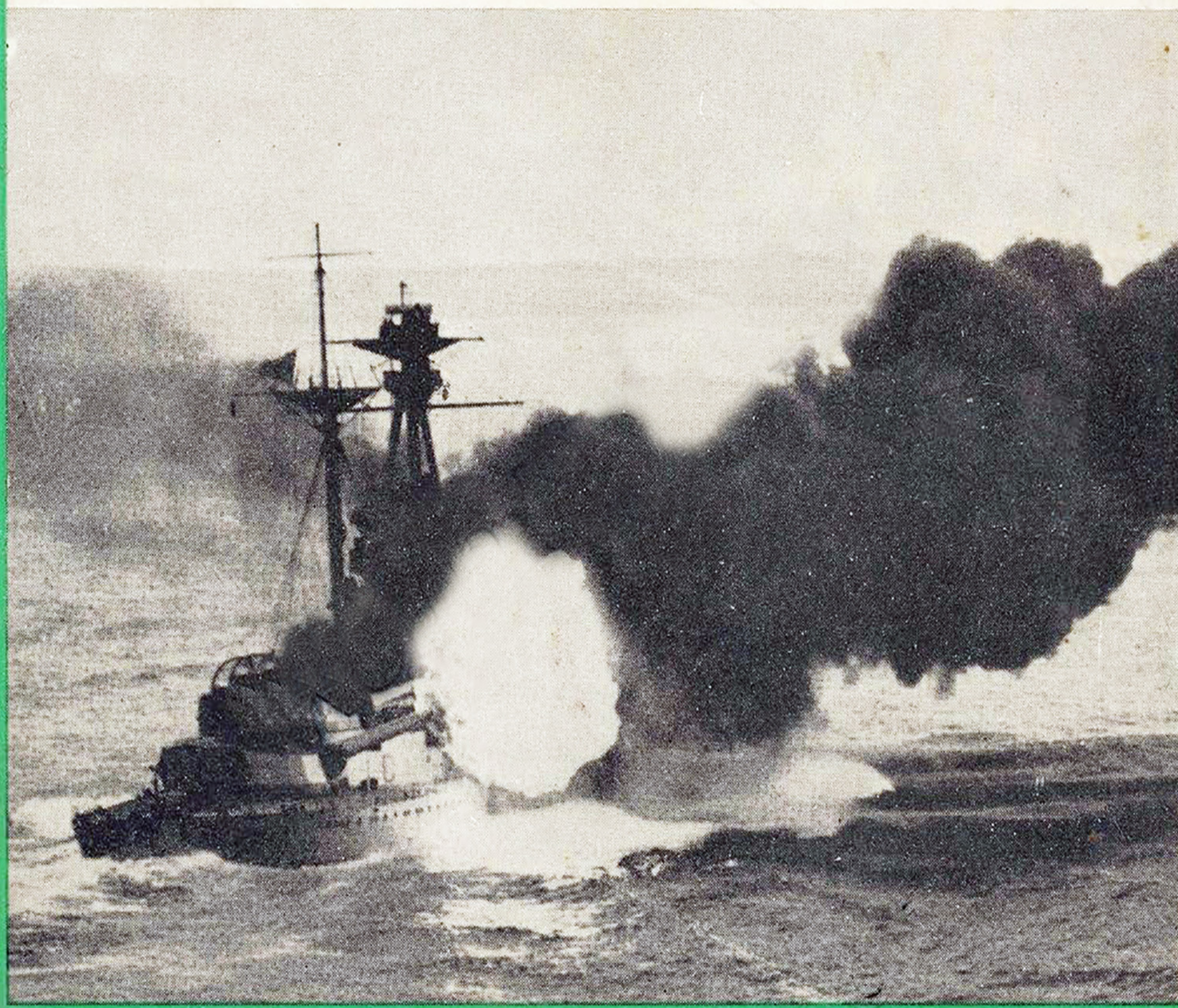

H. M. Le Fleming

WARSHIPS OF WORLD WAR 1

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First Published	-	-	October 1961
First Reprint	-	-	December 1963
Second Reprint	-	-	April 1966
Third Reprint	-	-	November 1967

abc

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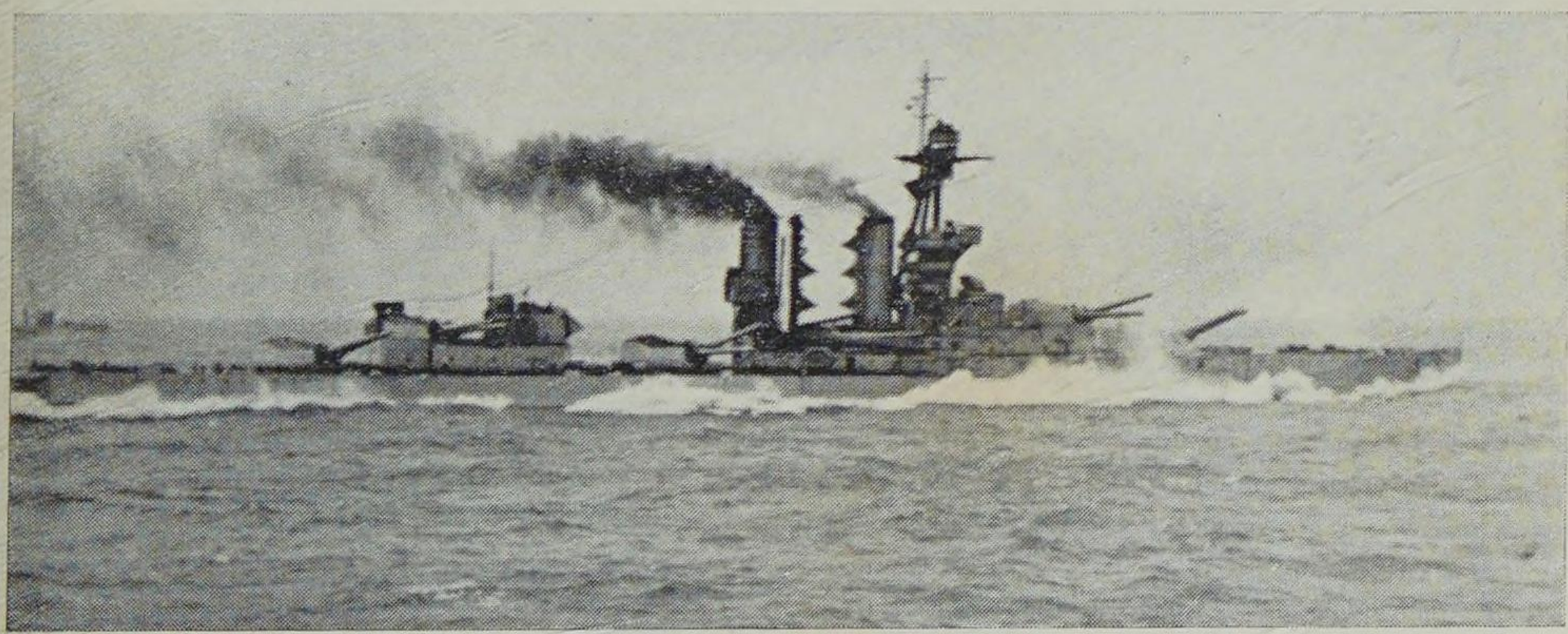

H.M.S. *Benbow* showing the anti range-finding baffles between the funnels.

[*I.W.M.*

COMBINED VOLUME

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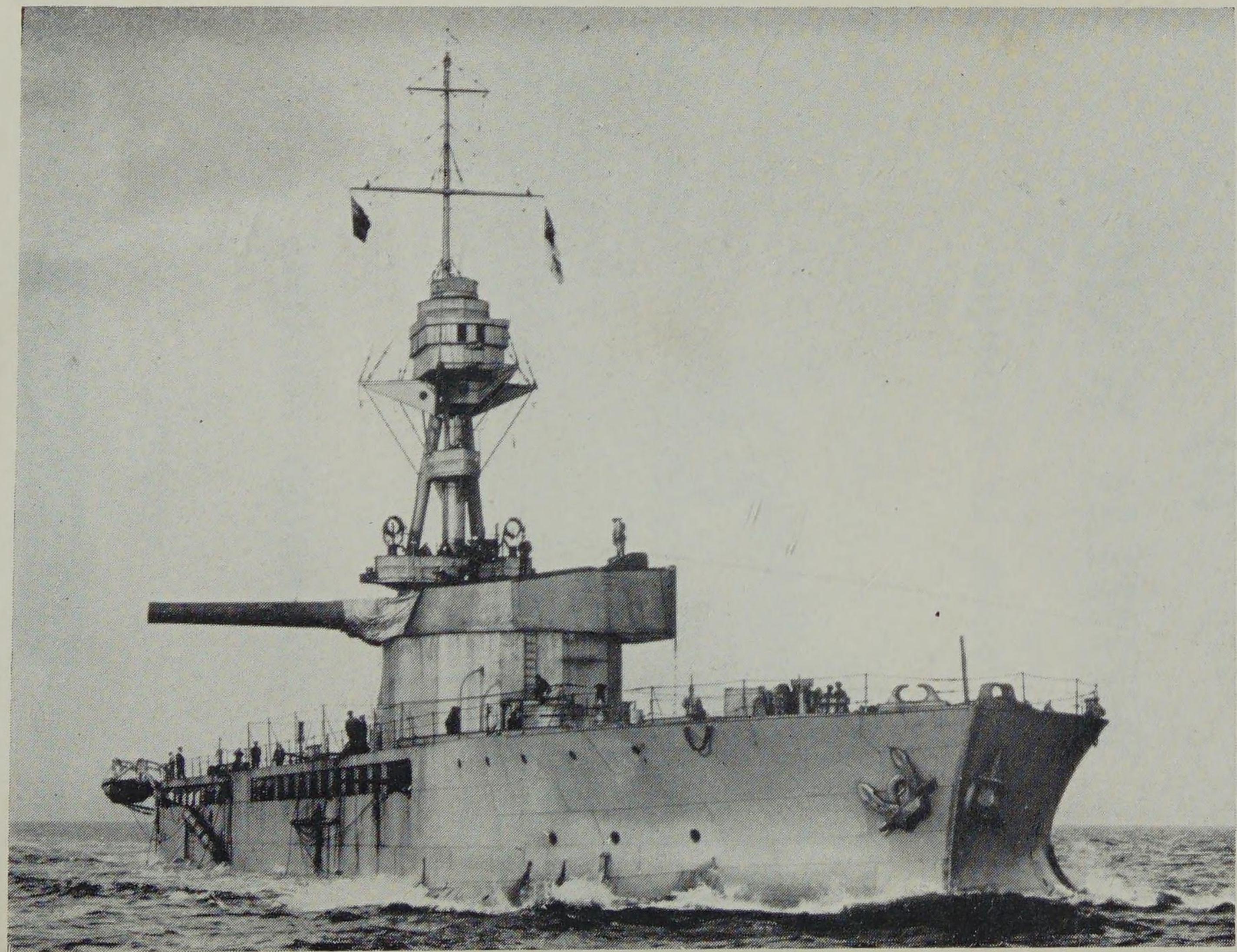


H.M.S. *Marshal Ney.*
[*I.W.M.*

CONTENTS

Page No.

INTRODUCTION vi

Section One

BATTLESHIPS AND BATTLE CRUISERS
BRITISH AND GERMAN 1

Section Two

CRUISERS
BRITISH AND GERMAN 61

Section Three

DESTROYERS
BRITISH AND GERMAN 131

Section Four

MISCELLANEOUS WARSHIPS
BRITISH AND GERMAN 207

Section Five

SUBMARINES
BRITISH AND GERMAN 275

Front Cover: H.M.S. *Resolution* opens fire. *I.W.M*

Introduction

INCLUDED in this Combined Volume are all the British and German ships dealt with in the separate ABC series *Warships of World War I;* Battleships (Section One), Cruisers (Section Two), Destroyers (Section Three), Miscellaneous Warships (Section Four), and Submarines (Section Five).

Section One deals with the British and German post-Dreadnought battleships and battle cruisers. British pre-Dreadnoughts are also summarised, although soon relegated to secondary duties after the outbreak of war, many having had their big guns transferred to monitors. Armoured cruisers, their contemporaries, are not included since, unlike battle cruisers, their main armament consisted of guns of smaller calibres. Since the development of the battleship from the " Wooden Wall " to the Dreadnought took only 45 years (1861-1906) a brief outline of this period of intensive progress is included. Another short account of naval events 1906-1918 sketches in the dramatic background of history against which the great ships described played their major roles. Two of the ships described were still in existence in 1959, H.M.S. *Canada* as the Chilean *Almirante Latorre* and the German S.M.S. *Goeben* as the Turkish *Yavuz*. Recognition features of both British and German ships are shown diagrammatically on pages 46-7 and 58-9.

Whereas battleships and battle cruisers were usually concentrated in the Grand Fleet squadrons in the North Sea, cruiser squadrons and individual cruisers were deployed all over the world, and Section Two covers British and German armoured, protected and light cruisers of World War 1. Notes on each ship's wartime activities, necessarily brief, have been supplemented by lists giving an overall view of the disposition of British cruisers at the outbreak and the close of the 1914-1918 war. Distinguishing features of each ship class are included in the beginning of each section covering a group of cruisers.

Included in Section Three are some 827 British and German destroyers of the World War 1 period. Since scrapping of destroyers began only shortly before 1914, and deliveries continued until 1919, the classes are given in full for completeness. Hostilities opened with about 240 effective British destroyers and 150 German, with a steady flow of new ships from the builders. British construction increased steadily, whereas after 1916 German production was cut down in favour of U-boats. Some of the war-built ships had a life of only a few months. It would be impossible to include the war services of so many destroyers in this book, but a general view can be obtained from the summaries of destroyer distribution in 1914, 1916 and 1918 on pp. 178-180. The chief distinguishing feature used is the funnel arrangement shown on page 181 with code reference. With German ships over thirty classes had very similar funnel arrangement and the class differences have been supplemented by the diagram on p. 205.

Section Four is devoted to surface warships other than those types already covered by the first three sections. Most of the ships described were designed or converted for specialised duties, some, such as aircraft carriers, fleet minesweepers and coastal motor boats, being new types evolved during the years 1914-1918, mainly as a result of the enormous developments in air, mine and submarine warfare. It is not possible to include the thousands of converted merchant ships, especially as some of them served in more than one capacity. The emphasis in this book is therefore on ships *built* as warships, together with such conversions as played an active part in purely naval operations.

Finally Section Five includes some 277 British and 391 German submarines, German vessels preponderate. The phenomenal rise of the submarine from the experimental stage to the most destructive of warships in only a decade is fully dealt with. After 1916 U-boats became the decisive factor in Naval Warfare and brought this country within sight of defeat in the 1917 holocaust of merchant shipping. Thereafter counter measures became increasingly effective.

The particulars given for each ship include the year or period of completion*, builder, displacement, full load figure (where published); the length where quoted is overall* except where marked (p) = between perpendiculars or (w) = on the water line and the beam. Details of the machinery are type of engines, number of screws, designed h.p. and speed, the last two sometimes being greatly exceeded in service.

Wartime (where known) and peacetime complements, guns (pdr. = pounder), torpedo tubes, the number of mines (if applicable) together with the greatest thickness of armour belt and deck and turret protection are also shown. **ML** indicates that the ship was largely employed as a minelayer during 1914-1918; **BS** is the abbreviation for Battle Squadron, **CS** for Cruiser Squadron and **LCS** for Light Cruiser Squadron. Wartime photographs have been chosen for the most part, particularly of ships in their dazzle warpaint. A particular feature of the book is the inclusion of the eventual fate of the large number of vessels listed, both British and German. Notes on ships which were projected or unfinished at the end of the war are included.

Abbreviations used for British ship builders or engine builders (where different) are as follows:—

A.W.	Armstrong Whitworth (Tyne).
C.	John Brown (Clyde)
C. Dy.	Chatham Dockyard.
CL.	Cammell Laird (Birkenhead).
Co.	Cockatoo Dockyard (Sydney, Australia).
D.Dy.	Devonport Dockyard.
Dny.	Denny (Dumbarton).
Dx.	Doxford (Sunderland).
E.	Earle (Hull).
F.	Fairfield (Clyde).
H. & T.	Humphreys & Tennant.
H. & W.	Harland & Wolff (Belfast).
L. & G.	London & Glasgow (now Harland & Wolf, Glasgow).
H.L.	Hawthorn Leslie (Tyne).
Ing.	Inglis (Clydebank).
Pal.	Palmers (Tyne).
Par.	Parsons (Tyne).
P.Dy.	Portsmouth Dockyard.
Pem. Dy.	Pembroke Dockyard.
Ros. Dy.	Rosyth Dockyard.
Sam.	Samuda (Poplar)
Sc.	Scotts (Greenock).

* Records of some of the earlier British ships do not always differentiate between launch, completion and acceptance dates or which length is quoted.

SH.	SWAN HUNTER (TYNE).
Sh. Dy.	SHEERNESS DOCKYARD.
St.	STEPHEN (CLYDE).
T.	THORNYCROFT (SOUTHAMPTON, formerly CHISWICK).
T.I.W.	THAMES IRON WORKS (BLACKWALL).
V.	VICKERS (BARROW).
V. (Mont.)	VICKERS (MONTREAL).
W.	WHITE (COWES).
Wall.	WALLSEND (TYNE).
WB.	BEARDMORE (CLYDE).
Y.	YARROW (CLYDE, formerly POPLAR).

Those for German yards are given in the appropriate part of each section for more convenient reference.

Grateful acknowledgments are due to Mr. H. T. Lenton and members of the Naval Photographic Club[1], for freedom to avail myself of their vast store of detailed knowledge and photographs; to Mr. A. P. Young and the staff of the Admiralty Library; to Mr. A. J. Charge and the staff of the Imperial War Museum[2]; to Mr. G. A. Osbon of the National Maritime Museum, Greenwich[3]; to Messrs. John I. Thornycroft & Co. Ltd., for all their most helpful assistance in the search for information and photographs, also to the following works of reference:—

BRASSEY'S NAVAL ANNUAL	1914, 1919 *and other editions.*
BRITISH BATTLESHIPS	*Dr. Oscar Parkes.*
DIE DEUTSCHEN KRIEGSCHIFFE 1915-1936	*Erich Groener.*
DIE DEUTSCHEN U-BOOTE 1900-1945	*Bodo Herzog.*
JANE'S FIGHTING SHIPS	1914, 1919 *and other editions.*
NAVAL OPERATIONS	*Julian S. Corbett.*
THE GERMAN SUBMARINE WAR 1914/18	*R. H. Gibson & Maurice Prendergast.*
THE WORLD CRISIS	*Winston S. Churchill.*

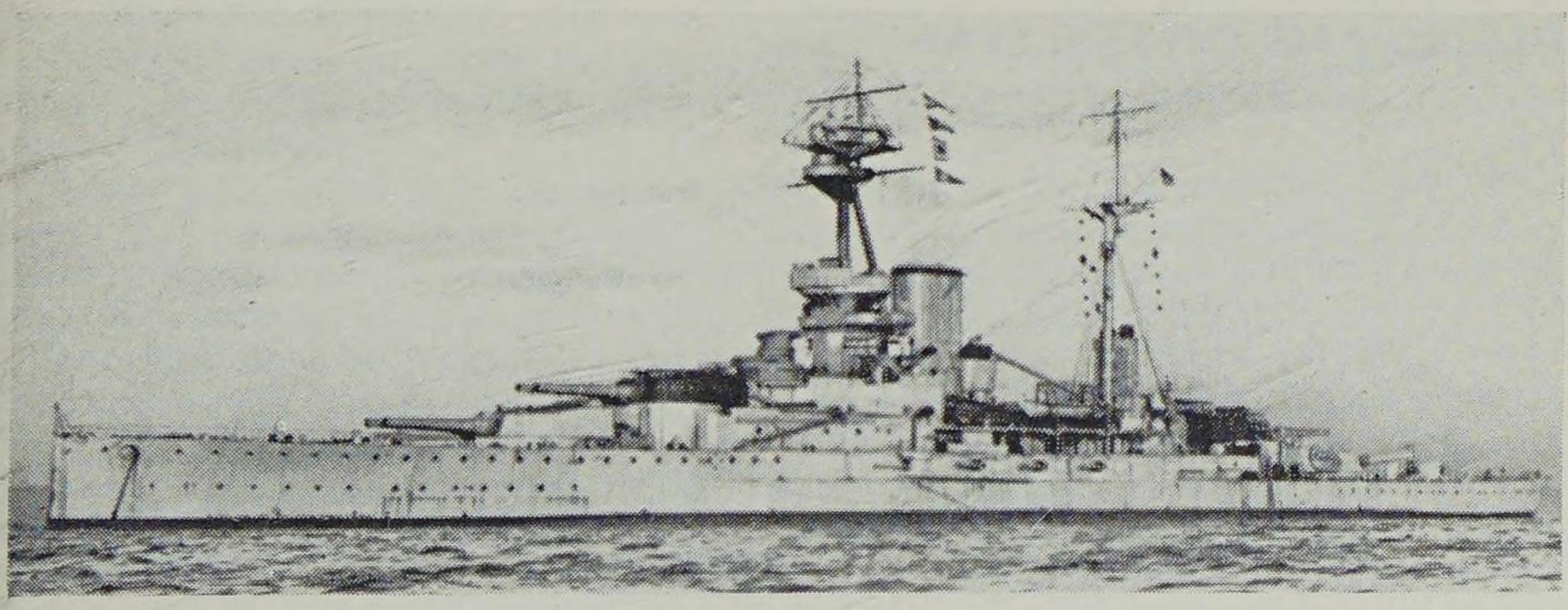
H. M. LE FLEMING.

1 Acknowledged as N.P.C.
2 Acknowledged as I.W.M.
3 Acknowledged as N.M.M. Greenwi :

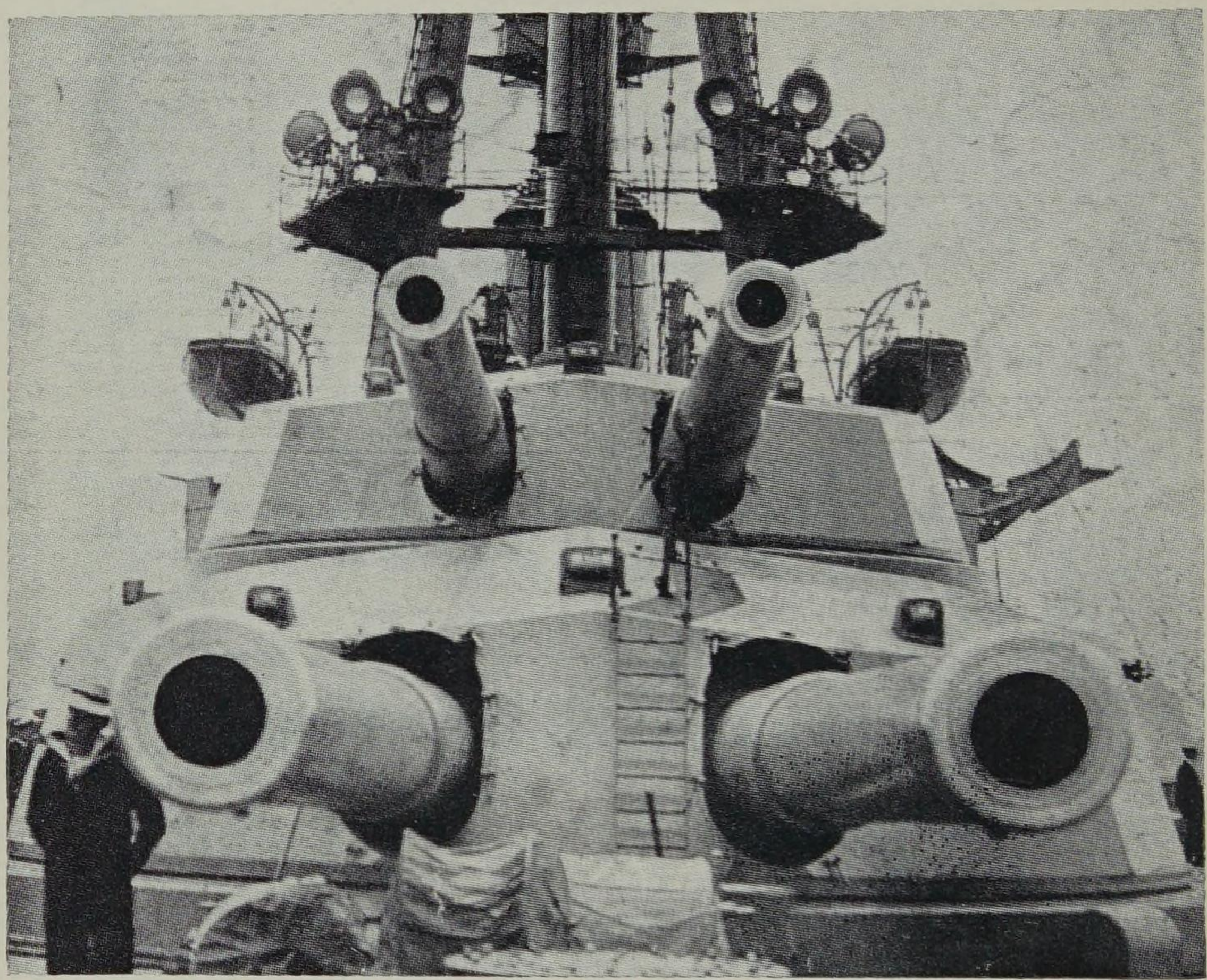
SECTION ONE

BATTLESHIPS

(British and German)



H.M.S. *Ramillies.*



★ *A close-up view of the after gun turrets of H.M.S. Neptune, showing the 12 in. guns.*

From Wooden Walls to Steel Battleships — 1861—1893

IN 1860 the British fleet still consisted of wooden sailing ships although most of them had been fitted with auxiliary steam engines and screws during the previous fifteen years. H.M.S. *Warrior* of 1861 was our first large iron screw warship. During the next thirty years every feature of the battleship became the subject of experiment and controversy.

'Turret versus Broadside' concerned the disposition of the armament. The traditional broadside system involved a large number of small guns each with a limited arc of fire and duplication of the battery on either side of the ship. Revolving turrets on deck, on the other hand, made the maximum use of the guns. Rapid growth in the size of guns and consequent reduction in the number carried, led inevitably to the turret system, but not before the 'broadside' had been modified as a 'central battery' with a few heavy pieces which could fire from two or more ports. The turret in turn necessitated the abandonment of sail which, with the increased power and reliability of steam, had become an auxiliary except for smaller ships. At the same time the muzzle-loader versus breech-loader contest was in full swing. With big guns, breech-loading had to come, but the early breech-loaders had had many set-backs. The matter was finally settled in 1879 when a serious explosion occurred on H.M.S. *Thunderer* through double-charging a heavy muzzle-loader.

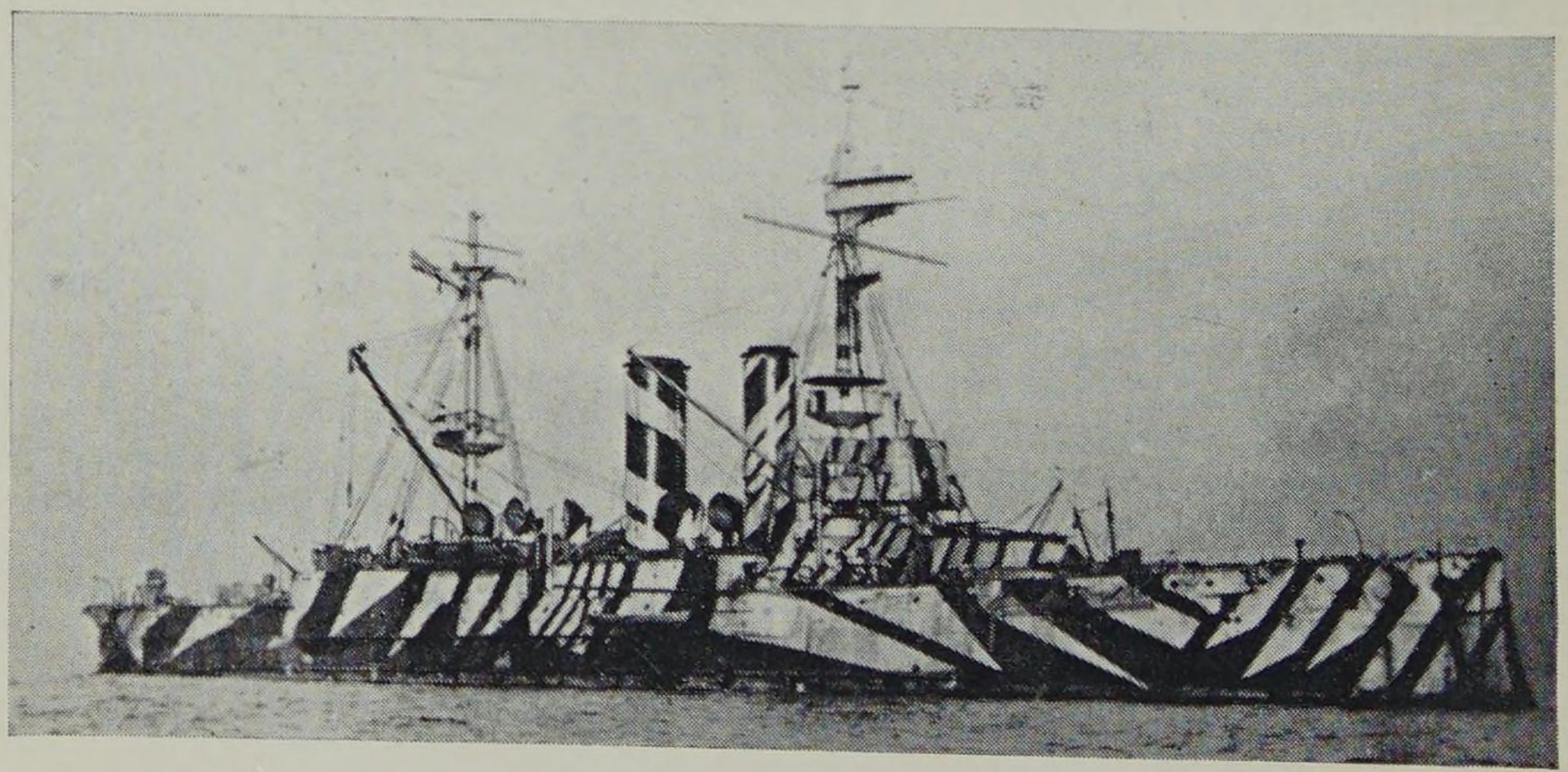
Meanwhile a new weapon, the torpedo, was being successfully developed and with it, light fast torpedo boats. As a defence the secondary armament of small quick-firing guns was introduced and disposed amidships somewhat in the old broadside fashion. Torpedo nets were also evolved as a protection for big ships when at anchor.

Steel first replaced iron in British warship contruction in 1879 and the development of special steels for armour plate was counteracted by progress with armour-piercing projectiles.

Many and varied were the earlier types of steam engines installed. By 1890 vertical compounds (three-cylinder in larger ships) were general and the triple expansion engine was coming in, at first with three cylinders and later with four (two low pressure) cylinders and four cranks for better balancing.

The first ships to include all the new features—and therefore the first "pre-Dreadnoughts"—were the 'Admiral' class of 1887-89, although to call them a class is a misnomer since individual ships differed widely. H.M.S. *Benbow*, for example, mounted two 110-ton 16.25-in. B.L. guns firing 1,800 lb. shell, which illustrates the enormous progress made since the 68 pdr. smooth bore of thirty years earlier. To save top weight these and some other ships did not have turrets, the guns being mounted on turntables which were encased in cylindrical armoured barbettes. With the 'Majestic' class of 1895-98, 12-in. guns mounted in twin turrets became standard.

Only one battleship earlier than the 'Majestics' survived to take part in the war: the old *Revenge*, one of the seven ships of the 'Royal Sovereign' class of 1892-94 which had 13.5-in. guns mounted on barbettes. Renamed *Redoubtable*, with her old guns lined up to 12-in., and fitted with anti-torpedo bulges, she joined the Monitors in bombarding the seaward end of the German lines. The range of her guns was increased to 16,000 yards by heeling the ship over when the bulges were flooded on one side.



Fifty pre-Dreadnoughts

WITH the ' Majestic ' class of 1895, battleship design attained uniformity for the first time since 1860. In the decade 1895-1905 new features appeared but they did not affect the general form. Water tube boilers with their rapid steam-raising and weight-saving qualities superseded cylindrical types, and wireless equipment was installed. From 1903 the smart Victorian livery went out. Black hulls with smart white lining and red boot-topping, white upperworks, yellow ochre funnels, masts and ventilators and all the spit and polish were replaced by sombre grey—a shadow of things to come.

The ' Majestics ' had twin funnels (side by side) but all later classes had two funnels in the usual fore and aft position. The next twenty ships were all very similar and have been grouped together in the table on p. 6. Foreign navies, under the urge to go one better, introduced an intermediate armament (7.5-in. to 10-in. guns) either in place of or in addition to the secondary armament. In our " King Edward " class of 1905-6 four 9.2-in. guns in single turrets were added to the standard armament (4—12-in. and 6-in. battery). In the later *Lord Nelson* and *Agamemnon* the secondary 6-in. guns were omitted and ten 9.2-in. were mounted in two double and one single turret on each side. These two ships actually appeared *after* the *Dreadnought* as they were in too advanced a stage to be altered. Intermediate batteries proved of doubtful value since range finding was often confused by difficulty in distinguishing the 9.2-in. from the 12-in. shell splashes. Ships with heavy intermediate batteries were often termed " semi-Dreadnoughts."

Lastly two ships, *Swiftsure* and *Triumph*, designed for Chile, were taken over whilst building. Their armament of 10-in. and 7.5-in. guns was out of step with British ships. The advent of the Dreadnought in 1906 put all earlier battleships into the category of those which could " neither fight nor run away." By 1914 Great Britain and Germany had Dreadnought battle fleets and the pre-Dreadnoughts were soon relegated to secondary duties.

Prior to about 1909 funnel bands (to distinguish ships of the same class) had been used spasmodically and to a limited extent. In that year a system which could be deduced alphabetically was standardised throughout the Navy.

MAJESTIC CLASS (Twin Funnels)

Length: 413 ft. *Beam:* 75 ft. *Displacement:* 14,900 tons.
Triple expansion. 2 screws. 12,000 h.p. 17.5 knots.
Guns: 4—12 in. 12—6 in. 16—12 pdr. and smaller.
Armour: 14 in. to 6 in. *Torpedo tubes:* 5—18 in.
Complement: 757.

Facing page: H.M.S. *London* in:—

Victorian livery (*top*).
Pre-1914 grey with standard funnel bands (*centre*).
Dazzle painting of 1917-18 (*bottom*).
7th Ship of name (1st 1657)

Name	Completed	Builder	1914–18	Sale and Scrapped
MAJESTIC	1895	P.Dy.	*Torpedoed by U21 Dardanelles*	1915
Magnificent	1895	C.Dy.	1915 Disarmed*. Transport, Storeship etc.	1920-21
Prince George	1896	P.Dy.	1915 Dardenelles. 1916 Disarmed, Depot ship, etc.	1920-21
Hannibal	1897	Pem.Dy.	1914 Guardship, 1915 Disarmed, Transport, Depot ship etc.	1920
Victorious	1897	C.Dy.	1914 Guardship, 1915 Disarmed*, Depot ship, etc.	1920-23
Jupiter	1897	C.	Worldwide service, Archangel to E. Indies.	1919
Mars	1897	CL.	1914 Guardship, 1915 Disarmed*, Transport, Depot ship, etc.	1920-21
Caesar	1897	P.Dy.	Worldwide service, Atlantic, Caribbean, Med. & Black Sea	1920-21
Illustrious	1898	C.Dy.	1914 Guardship, 1915 Disarmed*, Storeship.	1919-21

*The 12 in. guns from these ships were mounted on eight monitors.

CANOPUS, FORMIDABLE, LONDON, DUNCAN & QUEEN CLASSES.

Length: 430 ft. *Beam:* 74-75½ ft. *Displacement:* 12,950-15,000 tons.
Triple expansion:. 2 screws. 13,500-18,000 h.p. 18-19 knots.
Guns: 4—12 in. 12—6 in. 12 to 16—12 pdr. and smaller.
Armour: 12 in. to 6 in. *Torpedo tubes:* 4—18 in.
Complement: 750-810. (Name ship of each class in larger type).

Name	Completed	Builder	1914-18	Sale and Scrapped
CANOPUS	1900	P.Dy.	1914 Guardship S. American Stn. 1915 Dardanelles. 1916 Depot ship.	1919-20
Goliath	1900	C.Dy.	*Torpedoed at the Dardanelles* 1915.	—
Ocean	1900	D.Dy.	*Sunk by mine and gunfire Dardanelles* 1915.	—
Glory	1901	CL.	1914 N. Atlantic. 1915 Med. 1916 N. Russia. 1919 Depot ship (renamed *Crescent*).	1922
Vengeance	1901	V.	1914 Cameroons. 1915 Dardanelles. 1915 Med., E. Africa & E. indies. 1918 Depot ship.	1920-21
Albion	1901	T.I.W.	1914 E. Africa. 1915 Dardanelles. 1916 North Sea. 1918 Depot ship.	1919

Name	Completed	Builder	1914-18	Sale and Scrapped
FORMIDABLE	1901	P.Dy.	*Sunk by U24 Channel* 1915	—
Irresistible	1902	C.Dy.	*Sunk by mine and gunfire Dardanelles* 1915.	
Implacable	1902	D.Dy.	1915 Dardanelles, Med.* 1918 Northern patrol.	1920-21
LONDON	1902	P.Dy.	1915 Med.* 1918 Minelayer. 1919 Depot ship.	1920
Bulwark	1902	D.Dy.	*Destroyed by internal explosion* 1914.	—
Venerable	1902	C.Dy.	1914 Belgian coast. 1915 Med. 1919 Depot ship.	1920
DUNCAN	1903	T.I.W.	1914 Grand Fleet and Northern patrol. 1915 Med. 1917 Reserve.	1919-20
Russell	1903	Pal.	*Sunk by mine off Malta* 1916.	—
Exmouth	1903	CL.	1914 Grand Fleet and Northern patrol. 1914 Belgian coast. 1915 Dardanelles. 1917 Reserve.	1919-20
Albemarle	1903	C.Dy.	1914 Grand Fleet and Northern patrol. 1916 Guardship Archangel. 1917 Reserve.	1919-20
Cornwallis	1904	T.I.W.	*Sunk by U32 Med.* 1917.	—
QUEEN	1904	D.Dy.	1915 Dardanelles & Med.* 1919 Depot ship.	1920
Prince of Wales	1904	C.Dy.	1915 Dardanelles & Med.* 1919 Depot ship.	1920

Montagu of the Duncan class was wrecked on Lundy Is. in 1906.

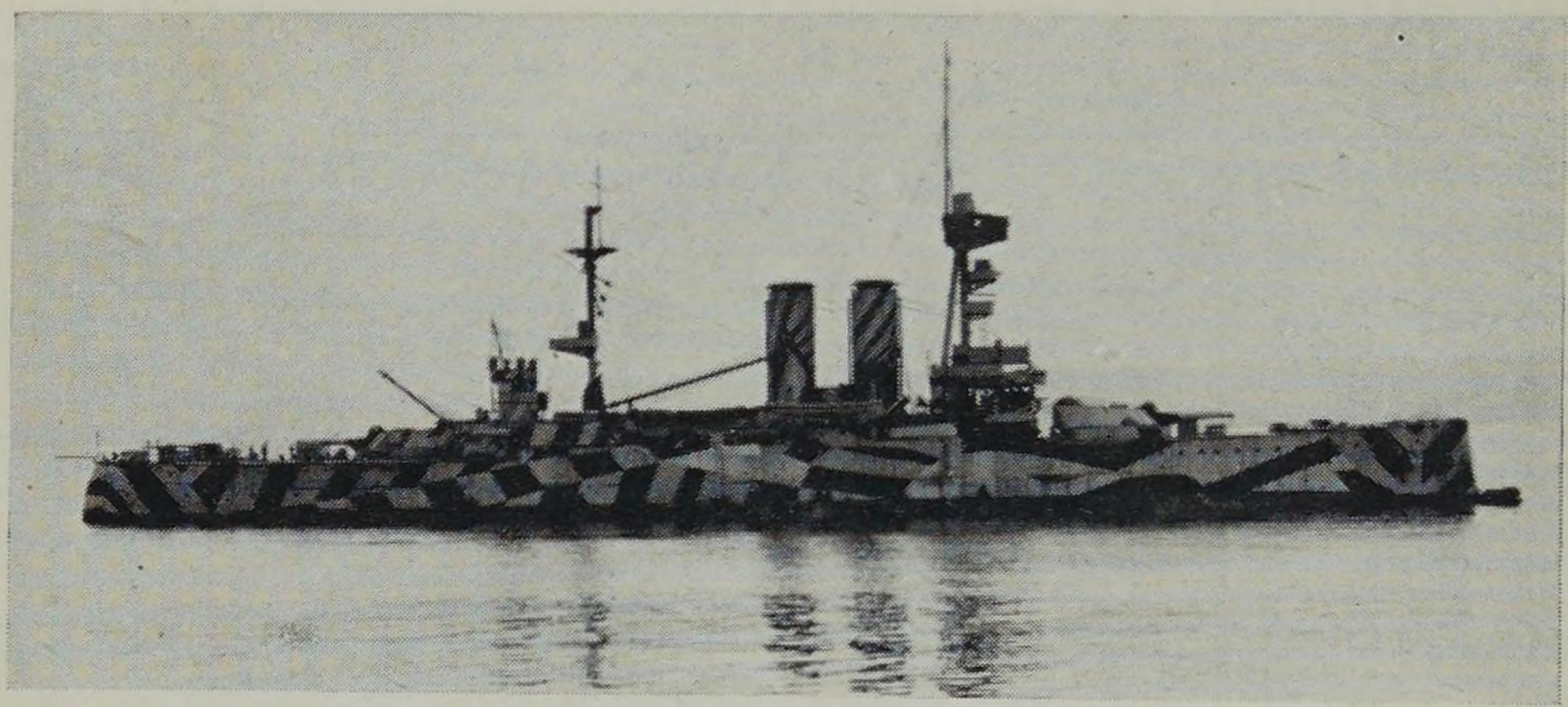
*These four ships reinforced the Italian fleet in containing the Austrian Navy being based on Taranto from 1915-18.

SWIFTSURE & TRIUMPH.

Length: 470 ft. *Beam:* 71 ft. *Displacement:* 11,800 tons.
Triple expansion. 2 screws. 14,000 h.p. 20 knots.
Guns: 4—10 in. 14—7.5 in. 14—14 pdr. and smaller.
Armour: 10 in. to 6 in. *Torpedo tubes:* 2—18 in. *Complement:* 700.

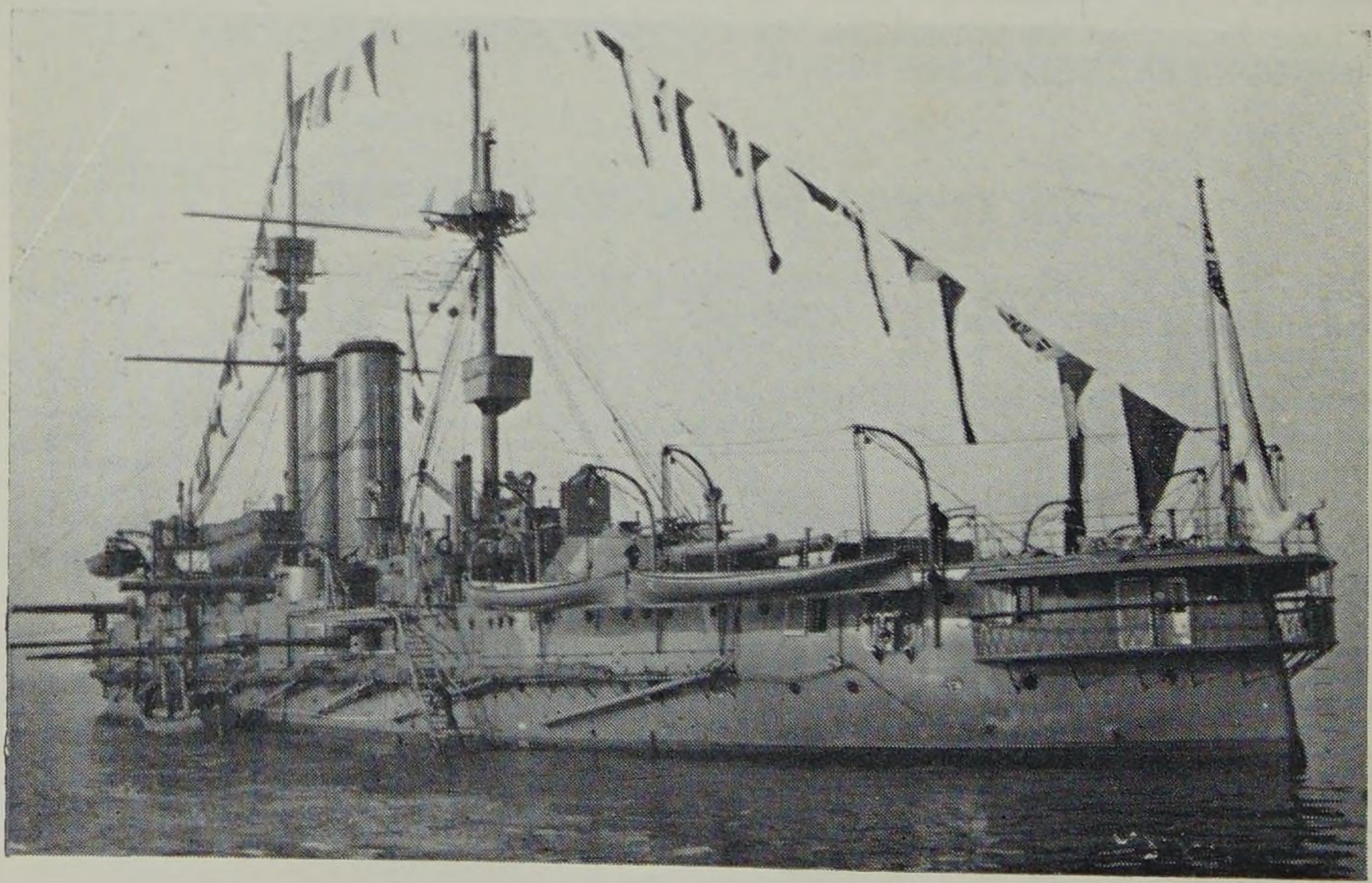
Name	Completed	Builder	1914-18	Sale and Scrapped
Swiftsure	1904	AW.	1914 Suez & Red Sea. 1915 Dardanelles. 1916 Reserve & Depot ship. 1919 Target.	1920
Triumph	1904	V.	*Sunk by U-boat Dardanelles* 1915.	—

These ships were easily recognised from their large goose-neck cranes in place of derricks, a feature commonly found on German ships.



H.M.S. *Commonwealth* dazzle painted in 1918. Note tripod mast. [*H.S. & R.*

H.M.S. *Hibernia*. The first aircraft take-off from a British warship was carried out from a seaplane runway on the foredeck.



KING EDWARD CLASS.

Length: 454 ft. *Beam:* 78 ft. *Displacement:* 17,500 tons.
Triple expansion (4 cyl.). 2 screws. 18,000 h.p. 19 knots.
Guns: 4—12 in. 4—9.2 in. 10—6 in. 12—12 pdr. and smaller.
Armour: 12 in. to 6 in. *Torpedo tubes:* 5—18 in. *Complement:* 777.

Name	Completed	Builder	1914-18	Sale and Scrapped
KING EDWARD VII	1905	D.Dy.	*Sunk by mine off Cape Wrath* 1916.	—
Commonwealth	1905	F.	1914 3rd B.S. 1918 altered* as Gunnery Training ship.	1921
Dominion	1905	V.	1914 3rd B.S. 1917 Depot ship.	1919-21
Hindustan	1905	C.	1914 3rd B.S.	1919-21
Zealandia†	1905	P.Dy.	1914 3rd B.S. 1915 Med. 1918 altered*. 1919 Depot ship.	1919-21
Africa	1906	C.Dy.	1914 3rd B.S. 1917 Attached 9th Cruiser Squadron. 1919 Depot ship.	1919-20
Britannia	1906	P.Dy.	*Sunk by UB50 off Cape Trafalgar* 1918.	—
Hibernia	1906	D.Dy.	1914 3rd B.S. 1915 Dardanelles. 1919 Depot ship.	1919-21

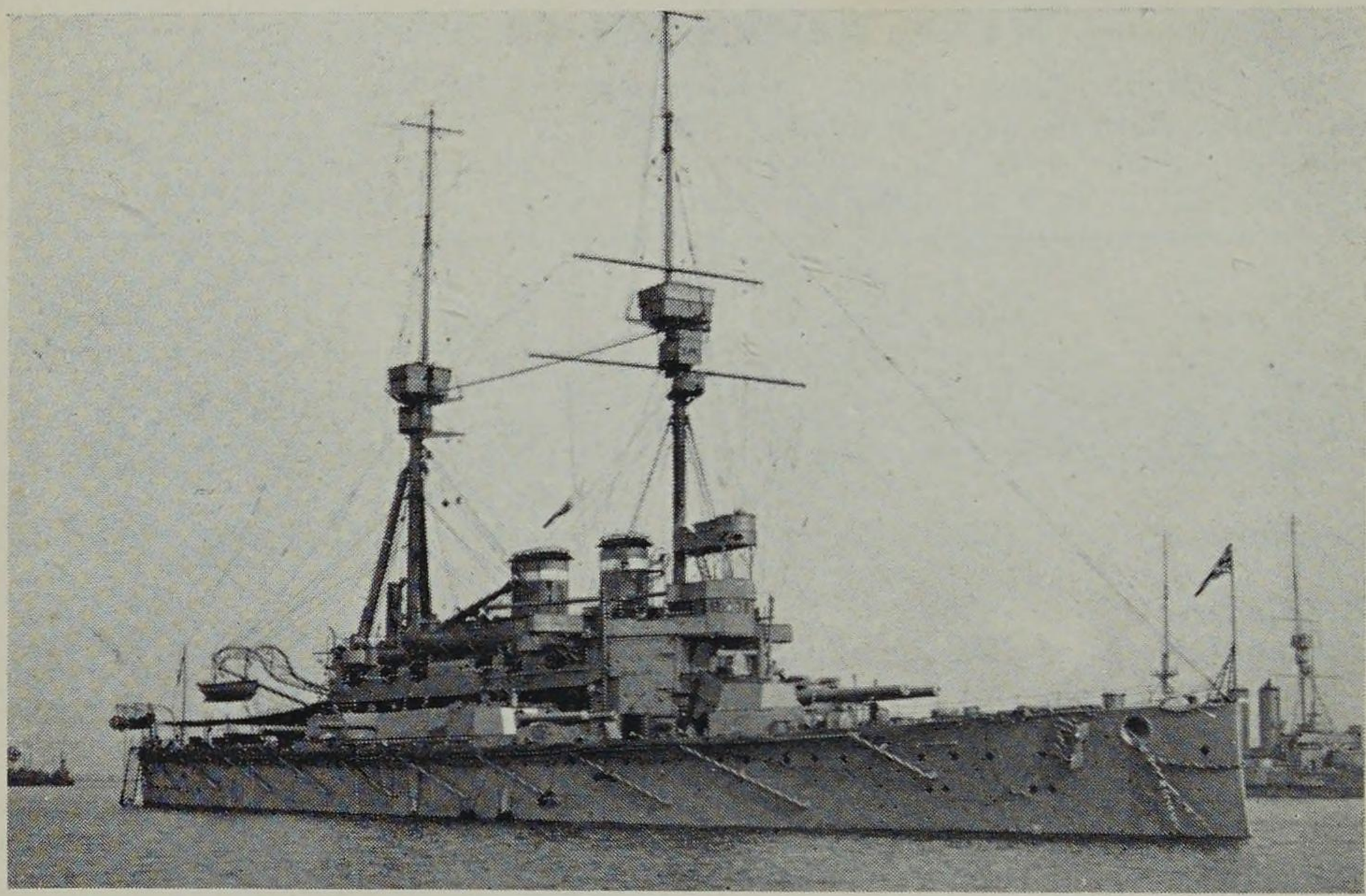
†Originally named *New Zealand*.
*Alterations included tripod foremasts and, in the case of *Commonwealth*, bulges as well.
At the outbreak of war these ships formed the 3rd B.S. (Battle Squadron) of the Grand Fleet, where they were known as the "Wobbly Eight." In April 1915 they were withdrawn from the Battle Fleet and in 1916 their base was changed to the Thames after the German battle cruiser raids on the E. Coast. In 1911-12 *Africa*, *Hibernia* and *London* (see above) were temporarily fitted with seaplane runways on the foredeck, the first aircraft take-off from a British warship being carried out on H.M.S. *Hibernia*.

LORD NELSON & AGAMEMNON

Length: 445 ft. *Beam:* 79½ ft. *Displacement:* 16,500 tons.
Triple expansion (4 cyl.). 2 screws. 16,750 h.p. 18.5 knots.
Guns: 4—12 in. 10—9.2 in. 15—12 pdr. and smaller.
Armour: 14 in. to 6 in. *Torpedo tubes:* 5—18 in.
Complement: 865. Tripod mainmasts.

Agamemnon	1907	WB.	1914 Channel. 1915 Dardanelles & Med. 1919 Radio-controlled target.	1926-27
Lord Nelson	1908	Pal.	1914 Channel. 1915 Dardanelles & Med.	1919-20

All surviving pre-Dreadnoughts were discarded after the War except H.M.S. *Agamemnon* which lasted (disarmed) as a radio-controlled target until 1926.



H.M.S. *Lord Nelson* in 1912. [*Seward*

H.M.S. *Agamemnon* in 1915 with torpedo nets out. Note mottled painting and false bow wave. [*I.W.M.*

Naval Events 1906-1918

IT is now forty years since the end of World War I and, although this book is concerned with ships rather than events, a brief account of the historical background is necessary for completeness. For it is a remarkable fact that the course of naval events was mainly governed by some sixty capital ships all completed in the short space of eight years (1908-1916) and the Dreadnought of 1906. After 1916 the importance of surface ships declined as submarines and aircraft became increasingly formidable rivals.

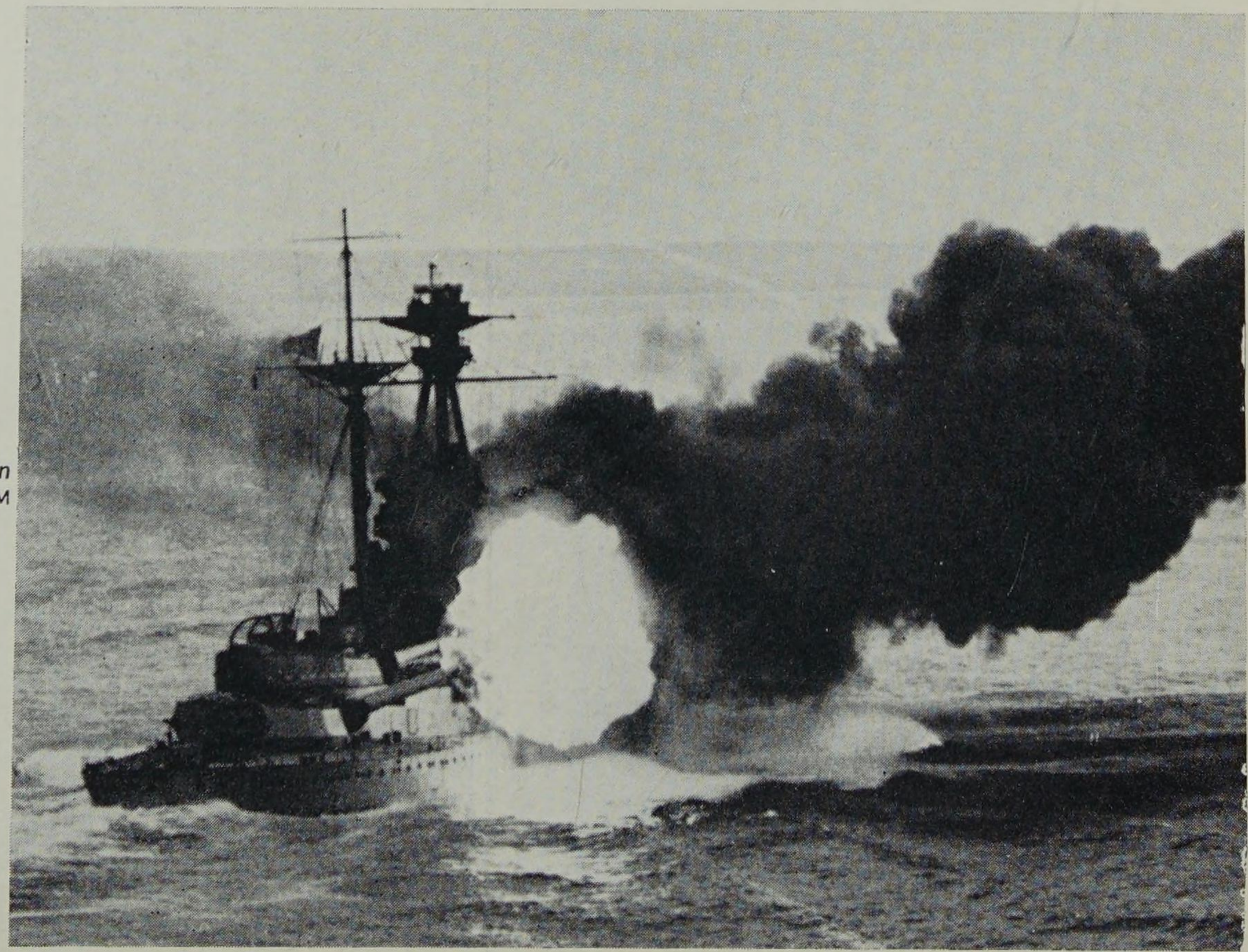
The completion of H.M.S. *Dreadnought* with ten 12 in. guns in 1906 rendered all previous battleships ineffective just as our first three Battle Cruisers of 1908 rendered all earlier heavy cruisers obsolete. All the major Naval powers had to scrap their building programmes and re-plan for bigger ships with enlarged dock facilities. For Germany it also meant enlarging the Kiel Canal. On the other hand it enabled all Powers to start level again, thus cancelling out our naval preponderance built up in the previous era. Naval power was now reckoned in units of Dreadnought battleships and battle cruisers. (Henceforward the term " battleships " in this book will refer to Dreadnoughts only; ' pre-Dreadnoughts " being used for earlier ships.)

As long ago as 1909 it was estimated that Germany would reach the most favourable ratio of strength in the autumn of 1914 (Britain: 22 battleships plus 10 battle cruisers, Germany: 16 battleships plus 6 battle cruisers). As the German ships were organised in fleets of 16 battleships this would also complete a post-Dreadnought " fleet ". Furthermore the enlargement of the Kiel Canal was due for completion at the same time and therefore from the Naval angle this was the most probable date for the outbreak of war. Later on the enemy anticipated further advantage from the addition of two battleships building in Britain for Turkey, which would draw off at least two of our ships to the Mediterranean to hold them. However, delivery was purposely delayed and the ships were taken over by us as H.M.S. *Agincourt* and H.M.S. *Erin*.

Concentrations of our immense fleet in pre-war years were sights which those who were fortunate enough to see them are never likely to forget. In 1911 for the Coronation Review of H.M. King George V the greatest assembly of warships ever seen took place and seemed to fill Spithead from the forts to the mouth of Southampton Water. In 1914 the fleet again mustered in full strength steaming up Channel in two parallel lines. With a light following air the smoke rose vertically from an apparently endless procession of majestic ships.

In 1912 " super-Dreadnoughts " with 13.5 in. guns joined the fleet and their austere outlines showed little beyond big guns, tripod masts and engine power symbolised in the great flat-sided funnels. Wartime additions in the way of director platforms, searchlight towers, etc., produced a slightly more subtle outline but the impression of great dignity and power has hardly been surpassed. At first gun trials took place in the Channel and the writer remembers considerable vibration at a distance of 60 miles. Near the coast many windows were shattered and thereafter the big ships did their trials out in the Atlantic.

Few of the works of man have presented such a magnificent spectacle as a battleship or battle cruiser at full power. Steaming at 25 to 33 knots, with bow and stern waves piled high, the smoke pouring from her funnels was visibly lifted by the forced draught. When firing, the ship was momentarily blotted out by globes of dazzling orange flame, followed by the tremendous concussion of her guns whose blast caused ripples and a flurry of spray on the water. A



H.M.S. Resolution opens fire. [I.W.M

moment later the thin brownish cloud of burnt out cordite was drifting away astern. When firing broadsides the combined flash was sometimes so great as to give the impression that the ship had blown up.

Until shortly before the War it was believed that a close blockade of Germany would be attempted. This would have provided opportunities for the piecemeal reduction of our fleet by losses from mine and torpedo attacks. Such losses and damage together with the periodic return of ships to base might have enabled the enemy to strike at a moment of parity or even temporary superiority. This possibility was foiled by the adoption of the Northern blockade based on Scapa. German offensive action took the form of laying minefields off our coasts immediately war was declared and this was successful in causing the loss of H.M.S. *Audacious*.

The Grand Fleet under Sir John Jellicoe was based on Scapa Flow and the Battle Cruiser Force under Sir David Beatty operated from Rosyth. Periodic sweeps were carried out over the North Sea.

Principal events involving battleships and battle cruisers may be summarised as follows:—

August 1914. Heligoland Bight. Successful battle cruiser support of light forces based on Harwich resulted in the sinking of three German light cruisers.

December 1914. Falklands. In November the armoured cruisers *Good Hope* and *Monmouth* had been sunk at Coronel by the German ships *Scharnhorst* and *Gneisenau* of the same category but later design. The battle cruisers *Invincible* and *Inflexible* were secretly despatched and overwhelmed the German ships off the Falkland Is.

December 1914. Bombardment of Hartlepool, Whitby and Scarborough by four German battle cruisers which escaped in squalls and mist.

January 1915. Dogger Bank. Our battle cruisers intercepted three German battle cruisers and the heavy armoured cruiser *Bluecher*. The enemy made off at high speed and in the ensuing running fight the *Bluecher* was sunk and the *Seydlitz* badly damaged as was Beatty's flagship *Lion*.

Feb.-March 1915. Dardanelles In addition to pre-Dreadnoughts the new *Queen Elizabeth* with 15 in. guns, and the battle cruisers *Indefatigable* and *Inflexible*, joined in the bombardments.

April 1916. Lowestoft and Great Yarmouth were subjected to 20 minutes bombardment by the German battle cruisers.

May 31st to June 1st, 1916. Jutland. The German battle cruiser force was sighted by our battle cruisers at 2.30 p.m. and at 3.48 p.m. fire was opened on a south-easterly course, the German intention being to draw our ships on to their High Seas Fleet. At 4.10 p.m. the 5th Battle Squadron joined our battle cruisers. This comprised four ships of the " Queen Elizabeth " class (the *Queen Elizabeth* being under refit at Portsmouth). At 4.40 p.m. the German High Seas Fleet was sighted and our ships turned to the opposite course (north westerly) to lead the combined German forces on to the Grand Fleet. This was accomplished by 6.17 p.m. when the Grand Fleet opened fire; the course was now easterly heading the enemy off. Mist and smoke caused frequent cessation of fire, touch was finally lost about 8.30 p.m. and half an hour later it was too dark. The fleet was by now moving south to cut the enemy off from his bases. Confused actions between smaller ships continued during the night during which the enemy escaped behind our main force. At 2.47 a.m. on June 1st our fleet turned north as the risk of entering enemy minefields became serious. Thus ended the first and only great naval gun battle between ships of the Dreadnought era, in which the lateness of the hour and poor visibility prevented the complete destruction of the enemy.

Although our ship losses were the greater (three battle cruisers, three armoured cruisers and eight destroyers against one battle cruiser, one pre-Dreadnought, four light cruisers and eight destroyers) damage throughout the German fleet was widespread, whereas on our side it was more or less confined to the Battle Cruiser Force which had borne most of the fighting. The only ship of the Battle Fleet to be seriously damaged was the *Marlborough* which was torpedoed but returned to base under her own steam. The bulk of our fleet, which was not heavily damaged, returned to base, refuelled and reported ready for sea by 9.45 p.m. on June 2nd. Victory for both sides has been claimed on various grounds, but the fact remains that the High Seas Fleet never again put to sea with the serious intention of engaging the Grand Fleet. With the exception of the *Bayern* and *Baden* which were completing, work on large ships ceased and activities were concentrated on U-boats.

August 1916. German fleet (excluding ships still under repair) left port but returned as soon as it was known that the Grand Fleet was out in force. It did not venture out again until the surrender.

December 1917. Grand Fleet reinforced by powerful American force of nine battleships:—U.S.S. *New York* (flagship), *Texas*, *Oklahoma*, *Nevada*, *Arizona*, *Arkansas*, *Wyoming*, *Florida* and *Utah* which became the 6th Battle Squadron. (They departed in December 1918.) This gave us overwhelming superiority.

November 1918. German fleet surrenders and is interned at Scapa Flow.

June 1919. German ships scuttled by their crews at Scapa.

The conduct of operations on both sides has been criticised as unduly cautious, but it must be remembered that the British Commander-in-Chief was the *only* person on either side who could lose the War in two hours. The sinking of H.M.S. *Audacious* and heavy losses at the Dardanelles showed that the danger from mines was very serious and that the sudden employment of a new type laid by submarines could be disastrous (magnetic mines *were* under development during World War I.)

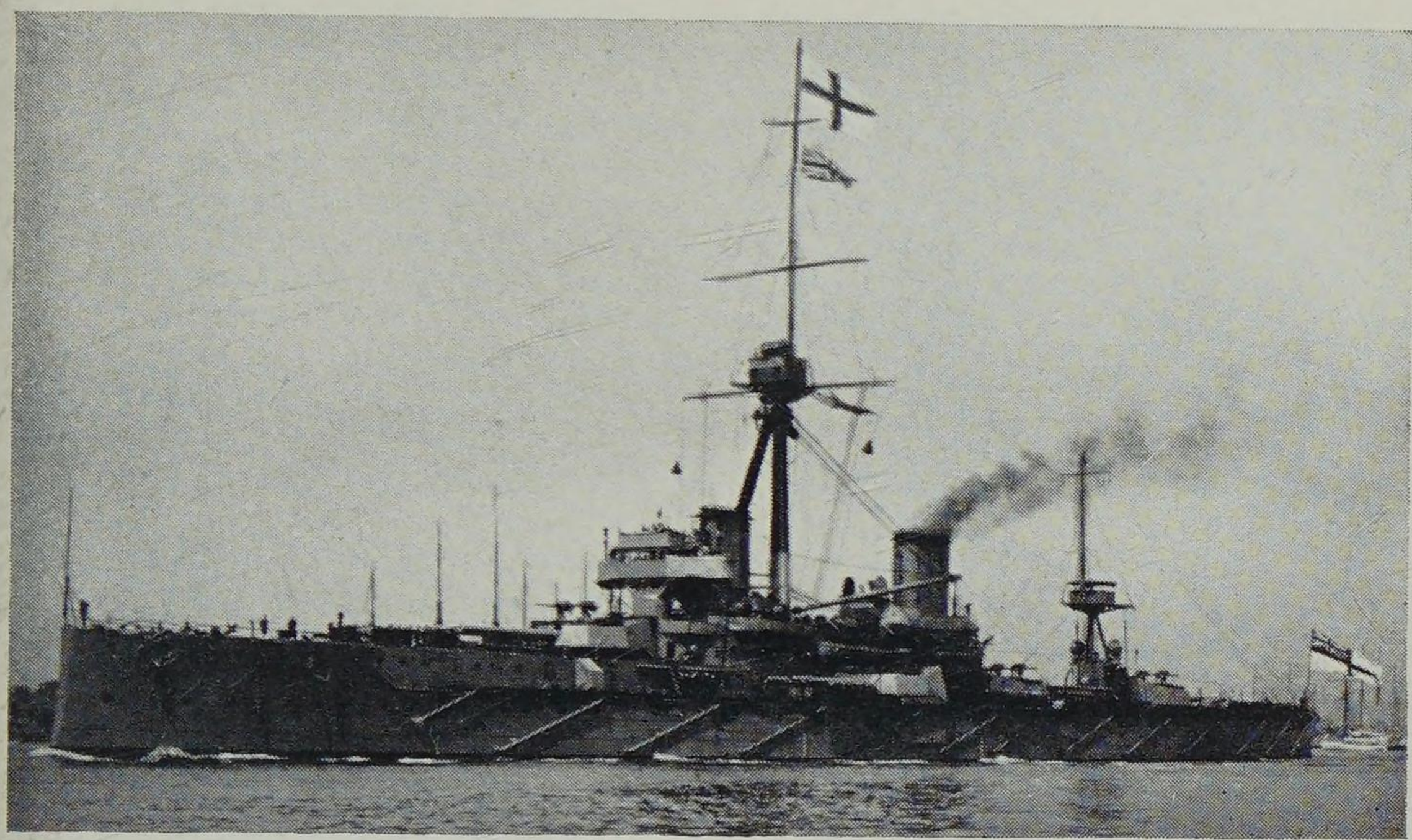
On the German side the preservation of the High Seas Fleet was essential to maintain a weapon which might in certain circumstances (such as widespread damage to our fleet by U-boats) prove decisive.

Returning now to 1905 the development of the capital ships which took part in the events just described will be traced.

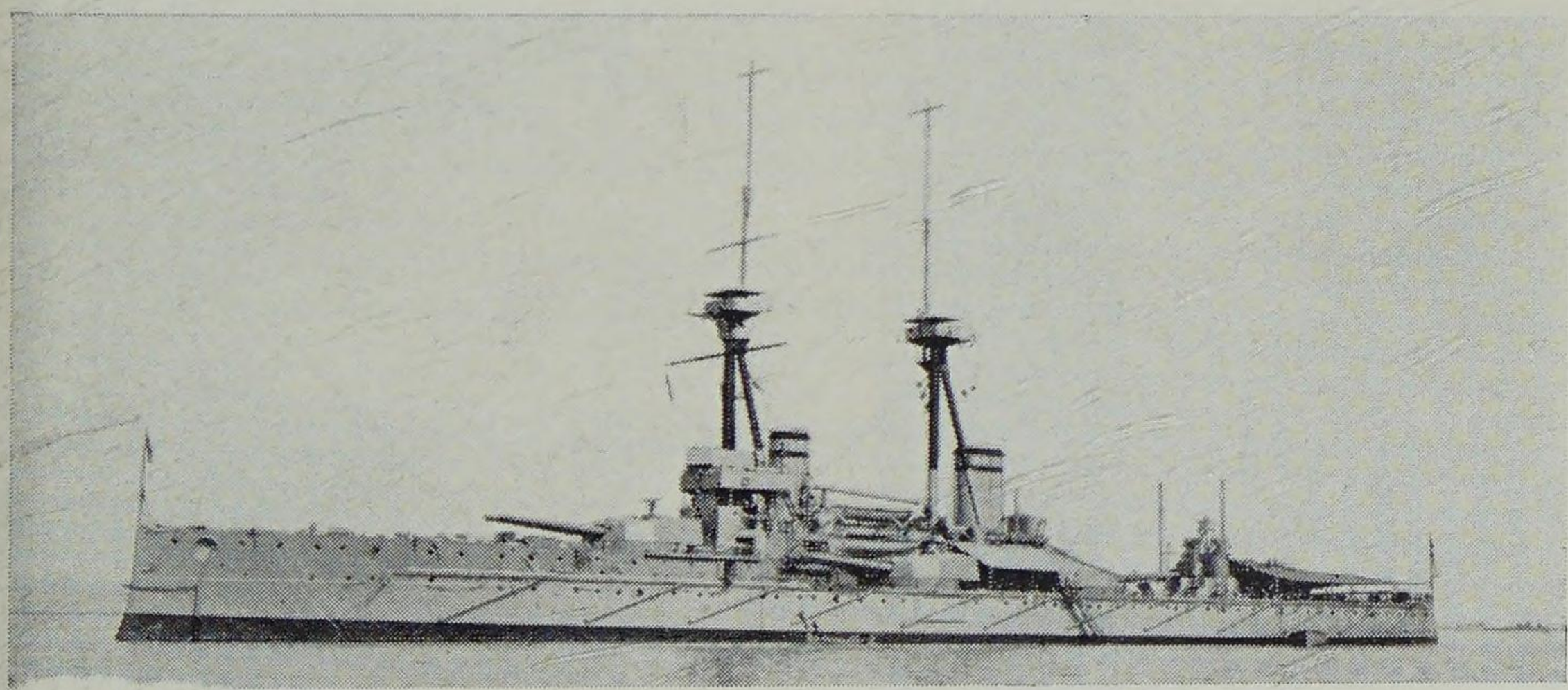
British Battleships (Dreadnoughts) with 12in. Guns.

Increasing intermediate armament on pre-Dreadnoughts was a pointer to the next stage—a greatly increased primary armament without the intermediate. This meant raising the main mountings from two turrets to four or more and such plans had already been projected in the U.S.A. and Italy. Nor was there anything new in the basic idea since the *Royal Sovereign* of 1864 had four turrets.

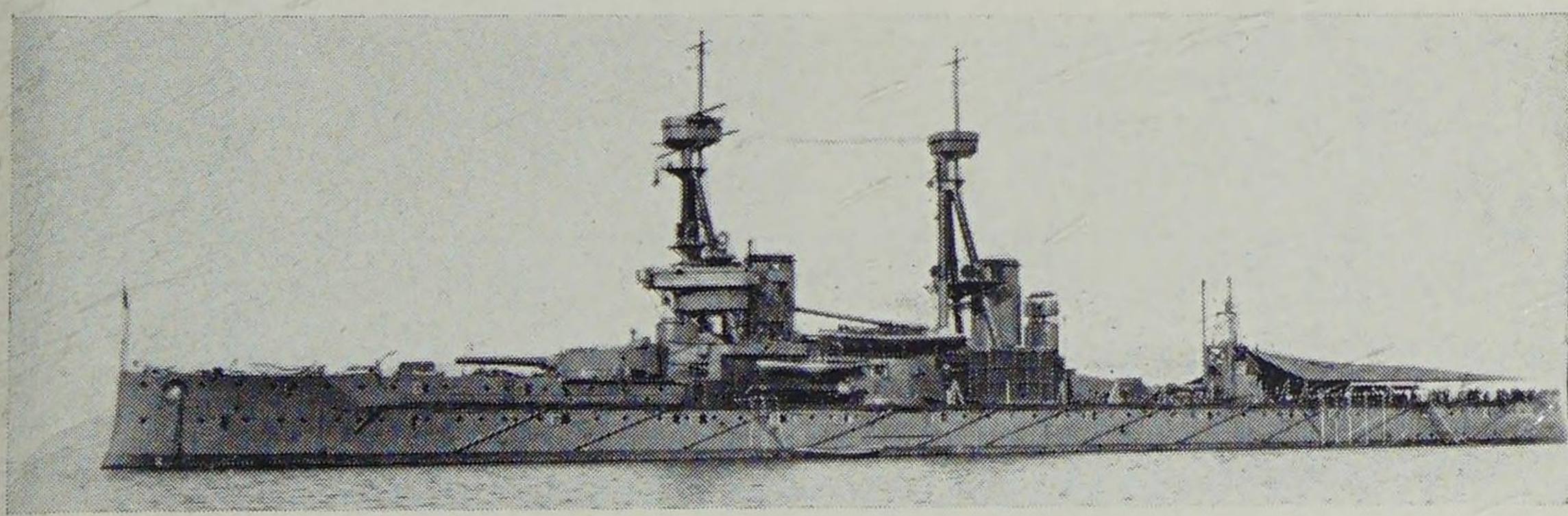
What *was* remarkable was the speed with which the *Dreadnought* was built at Portsmouth Dockyard. Laid down in October 1905, she was launched the following February and ready for trials in exactly one year. The primary armament was arranged in five twin 12 in. turrets, three on the centre line and two amidships on either beam giving a broadside of eight big guns. The U.S.S. *South Caroline* and *Michigan* designed *before* the Dreadnought but not completed until 1909, also had eight gun broadsides but only four turrets. On the centre line and superimposed fore and aft this arrangement made more efficient use of



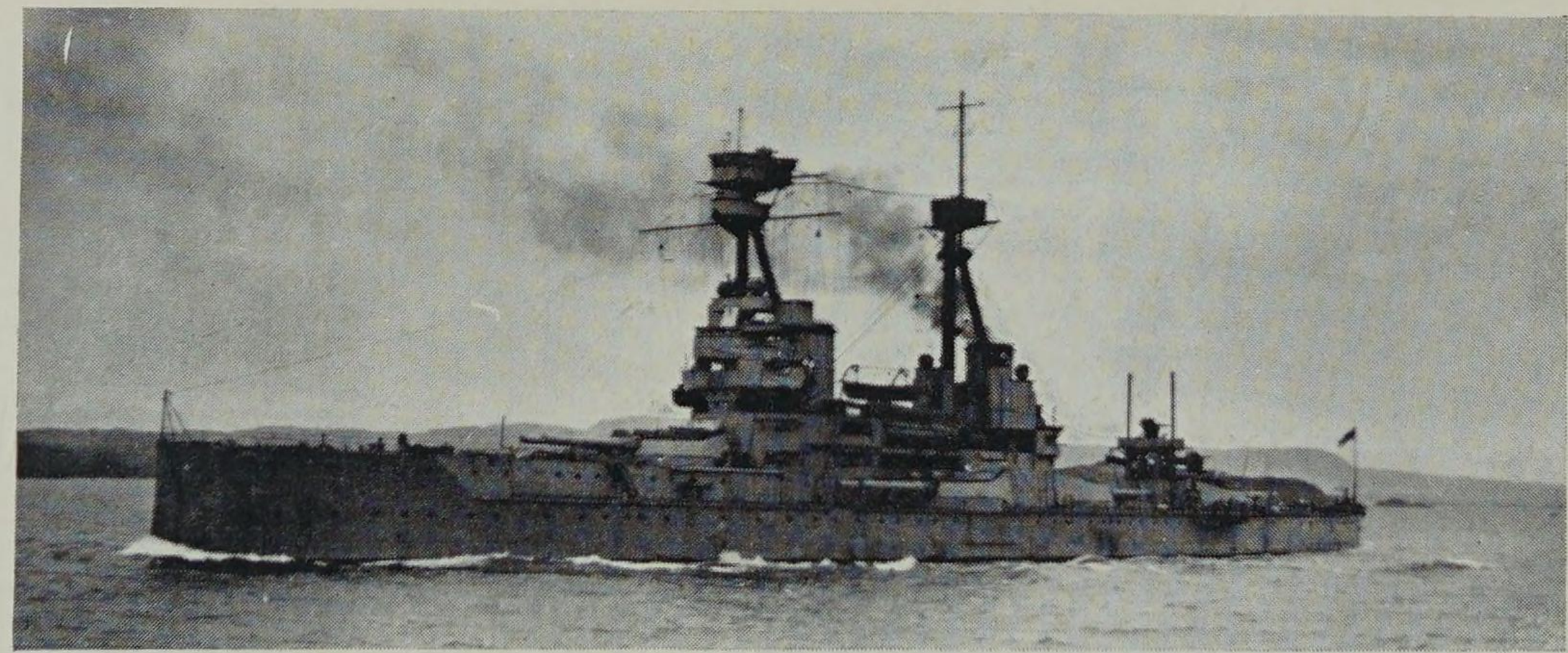
H.M.S. *Dreadnought*.



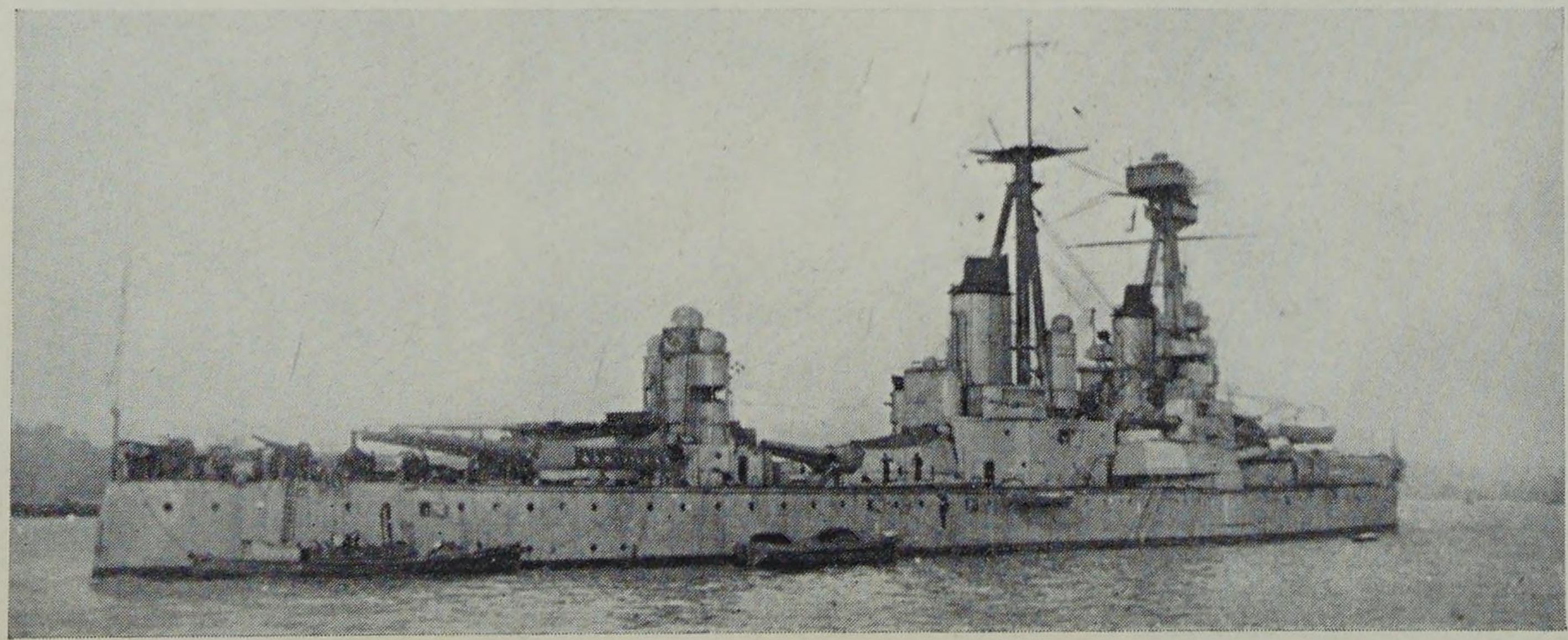
H.M.S. *Vanguard* in 1912. [Seward



H.M.S. *Bellerophon* in 1914. Note short top-masts and re-grouped searchlights.



H.M.S. *Superb* in 1918. In that year she led the allied fleet through the Dardanelles [*H.S. & R.*



H.M.S. *Collingwood* in 1918. [*I.W.M.*

the guns and anticipated the plan later adopted universally. At this date it makes the British and German reluctance to abandon wing turrets difficult to understand.

However H.M.S. *Dreadnought* was not only notable for increased size and gun power. She was the first large warship to be driven by steam turbines and four screws which brought the speed up to 21 knots. Quadruple screw turbines remained the standard machinery for large British warships thereafter. The single tripod mast was a new and striking feature. Increased gun ranges (invisible at turret level) and improved range finding and fire control apparatus necessitated a vibration-free platform aloft—hence the tripod.

H.M.S. DREADNOUGHT.

Length: 526 ft. *Beam:* 82 ft. *Displacement:* 17,900-20,700 tons.
Turbines: 4 screws. 23,000 h.p. 21-22 knots.
Guns: 10—12 in. 24—12 pdr.* *Torpedo tubes:* 5 (later 4)—18 in.
Armour: Belt 11 in., turrets 8 in. *Complement:* 862.
*Later altered to 10—12 pdr., 2—3 in. A.A., 2—12 pdr. A.A.

Name	Completed	Builder	Engines	
Dreadnought	10/1906	P.Dy.	V.	9th of name (1st 1573).

1914, Flagship 4th B.S. 1915, Sank U29 (whose Captain had sunk the old cruisers *Aboukir*, *Cressy* and *Hogue*). 1916, Refit and Flagship 3rd B.S. ("King Edwards"). 1919, Reserve. 1920-22, Sale and scrapped.

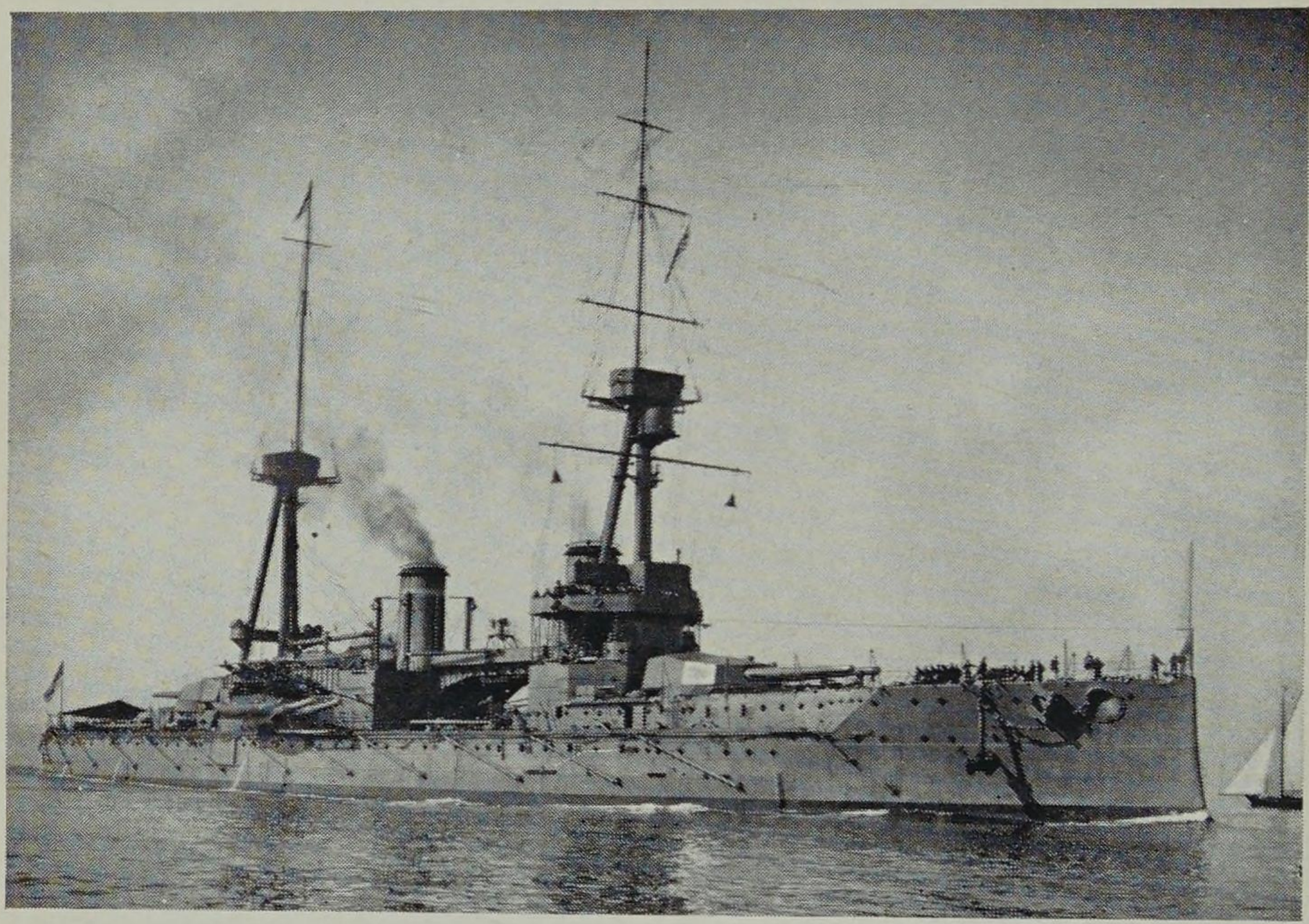
The "Bellerophon" class which followed had two tripod masts and the secondary armament was increased to 4 in. guns.

BELLEROPHON CLASS.

Length: 526 ft. *Beam:* 82 ft. *Displacement:* 18,600-22,000 tons.
Turbines: 4 screws. 23,000 h.p. 21-22 knots.
Guns: 10—12 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—18 in.
Armour: Belt 11 in., turrets 8 in. *Complement:* 750-850.
*Later altered to 10 to 11—4 in. 2—4 in. or 3 in. A.A.

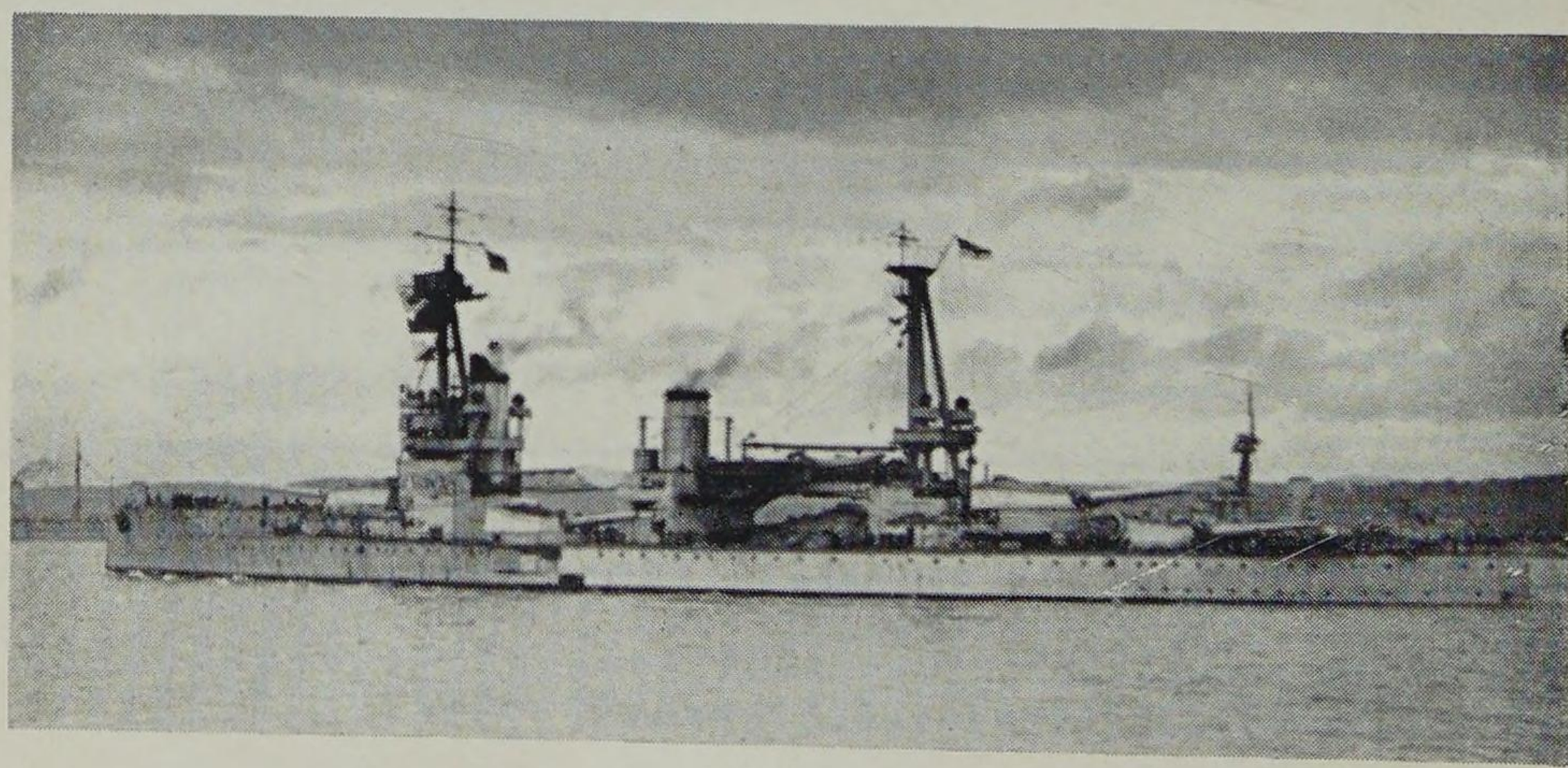
Name	Completed	Builder	Engines	
Bellerophon	2/1909	P.Dy.	F.	4th of name (1st 1756).
Temeraire	5/1909	D.Dy.	HL.	5th of name (1st 1694).
Superb	5/1909	AW.	Wall.	9th of name (1st 1710).

Bellerophon: 1914, 4th B.S. 1916, Jutland. 1919, Turret drill ship. Sale and scrapped 1920-21.
Temeraire: 1914, 4th B.S. 1916, Jutland. 1918, Mediterranean. 1919, Cadets training ship. Sale and scrapped 1921-22.
Superb: 1914, 1st B.S. 1916, Jutland. 1918, Led Allied fleet through Dardanelles. 1919, Turret drill ship: Target. Sale and scrapped 1920-22.



H.M.S. *Neptune* as built in 1911.
[Coze s

H.M.S. *Neptune* in 1918. Note the many wartime changes. [*I.W.M.*



The " St. Vincent " class were very similar but had longer (50 cal.) 12 in. guns and could be distinguished by their small fore funnels.

ST. VINCENT CLASS

Length: 536 ft. *Beam:* 84 ft. *Displacement:* 19,250-22,900 tons.
Turbines: 4 screws. 24,500 h.p. 21-22 knots.
Guns: 10—12 in. 18—4 in.* *Torpedo tubes:* 3 (later 2)—18 in.
Armour: Belt 10 in., turrets 11 in. *Complement:* 800-850.
*Later altered to 12—4 in., 2—3 in. A.A.

Name	*Completed*	*Builder*	*Engines*	
St. Vincent	5/1910	P.Dy.	Sc.	3rd of name (1st 1692).
Collingwood	4/1910	D.Dy.	HL.	4th of name (1st 1841).
Vanguard	2/1910	V.	V.	7th of name (1st 1586).

St. Vincent: 1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Turret drill ship. Sale and scrapped, 1919-22.
Collingwood: 1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Turret drill ship. Sale and scrapped 1920-22.
Vanguard: 1914, 1st B.S. 1916, 4th B.S. Jutland. 1917, Destroyed by internal explosion.

The next ship, H.M.S. *Neptune* had the wing turrets in echelon and a flying deck with limited possibility of firing 10 gun broadsides. The after turrets were superimposed for the first time in the Royal Navy. During the war the forward part of the flying deck was removed.

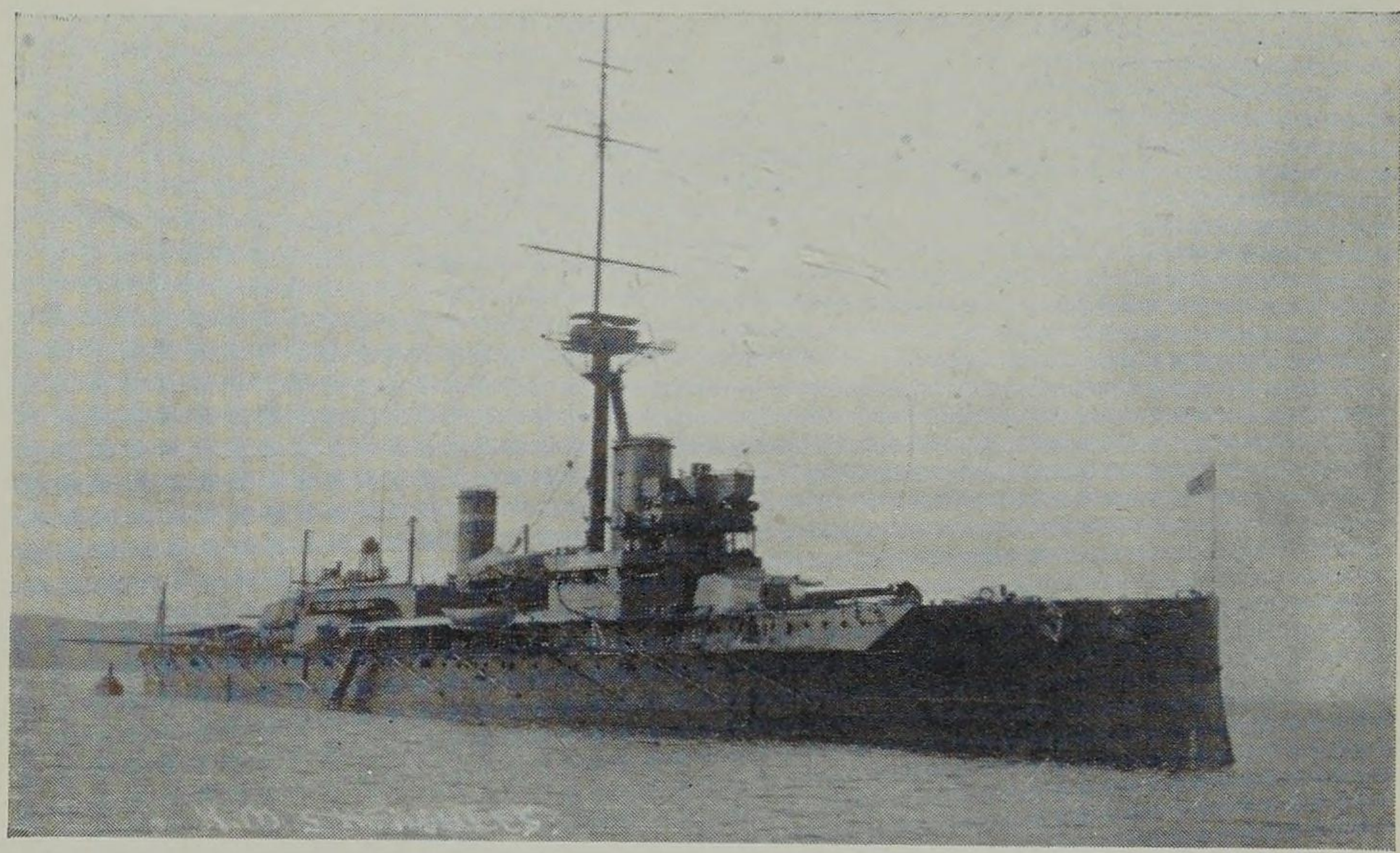
H.M.S. NEPTUNE

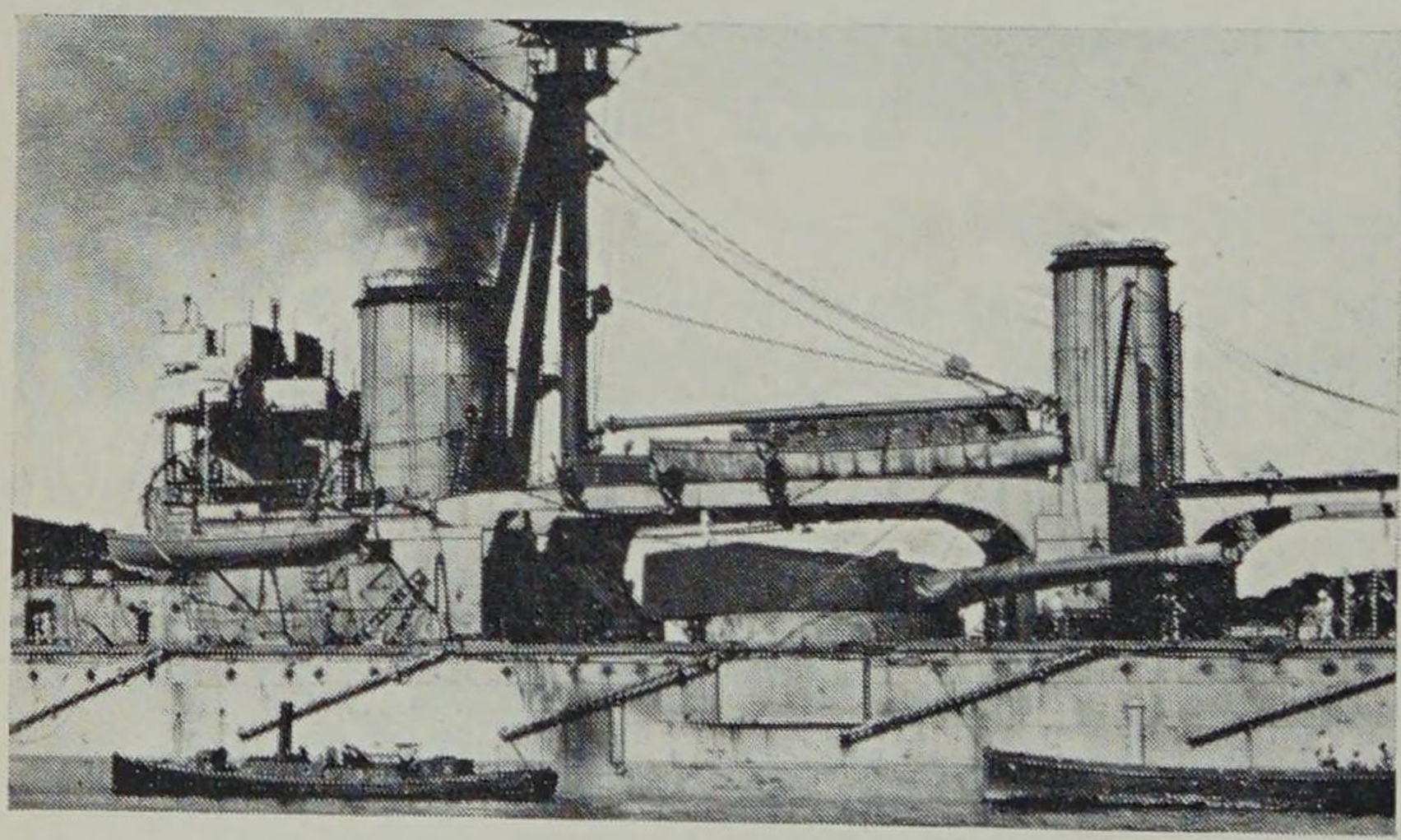
Length: 546 ft. *Beam:* 85 ft. *Displacement:* 19,900-22,000 tons.
Turbines: 4 screws. 25,000 h.p. 21-22 knots.
Guns: 10—12 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—21 in.
Armour: Belt 10 in., turrets 11 in. *Complement:* 813-900.
*Later altered to 12—4 in., 2—3 in. A.A.

Name	*Completed*	*Builder*	*Engines*	
Neptune	1/1911	P.Dy.	C.	15th of name (1st 1683).

1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Reserve. Sale and scrapped 1921-22.

The " Colossus " class could be distinguished by their single tripod mast against the *Neptune's* two. During the War the after part of the flying deck was removed.

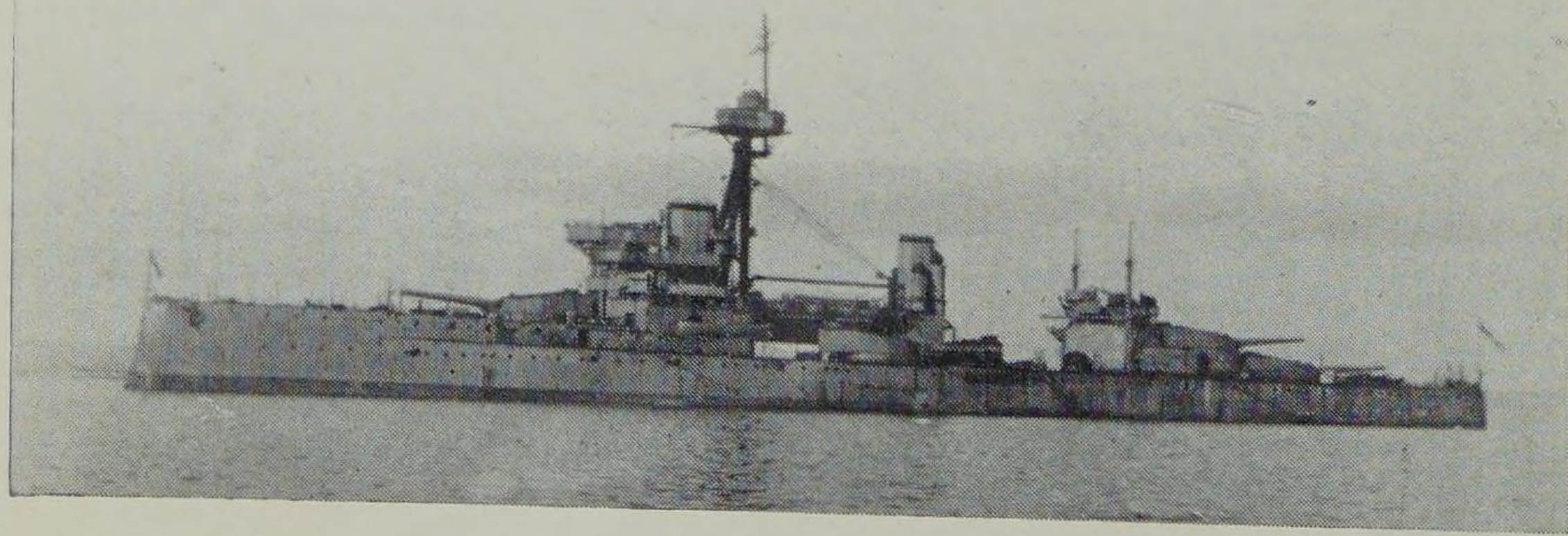




Above: H.M.S. *Hercules.* [*Seward*

Left: H.M.S. *Colossus* showing detail. [*R. Perkins*

Below: H.M.S. *Colossus* as in 1918. [*Seward*



COLOSSUS CLASS.

Length: 546 ft. *Beam:* 86 ft. *Displacement:* 20,000-22,250 tons.
Turbines: 4 screws. 25,000 h.p. 21-22 knots.
Guns: 10—12 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—21 in.
Armour: Belt 11 in., turrets 11 in. *Complement:* 831-900.
*Later altered to 12—4 in., 1—4 in. or 3 in. A.A.

Name	Completed	Builder	Engines	
Colossus	7/1911	Sc.	Sc.	5th of name (1st 1787).
Hercules	8/1911	Pal.	Pal.	6th of name (1st 1759).

Colossus: 1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Training ship partly painted in Victorian livery 1920-21. Sale and scrapped 1928.

Hercules: 1914, 1st B.S. 1916, Jutland. 1917, 4th B.S. 1919, Allied Naval Commission to Kiel. Sale and scrapped 1920-22.

The *Agincourt* was ordered as the *Rio de Janeiro* for Brazil with 12—14 in. guns. The design was altered to 14—12 in. to simplify ammunition supply as Brazil already had ships with 12 in. guns. She was transferred to Turkey as the *Sultan Osman I* and taken over by Britain at the outbreak of war. The flying deck was removed and at a later stage the main mast. She was the only big ship to have fourteen big guns and seven turrets (denoted A, B, P, Q, X, Y, Z).

H.M.S. AGINCOURT.

Length: 671½ ft. *Beam:* 89 ft. *Displacement:* 30,250 tons.
Turbines: 4 screws. 34,000 h.p. 22 knots.
Guns: 14—12 in. 20—6 in. 8—3 in. 2—3 in. A.A. *Torpedo tubes:* 2—21 in.
Armour: Belt 9 in., turrets 12 in. *Complement:* 1,267.

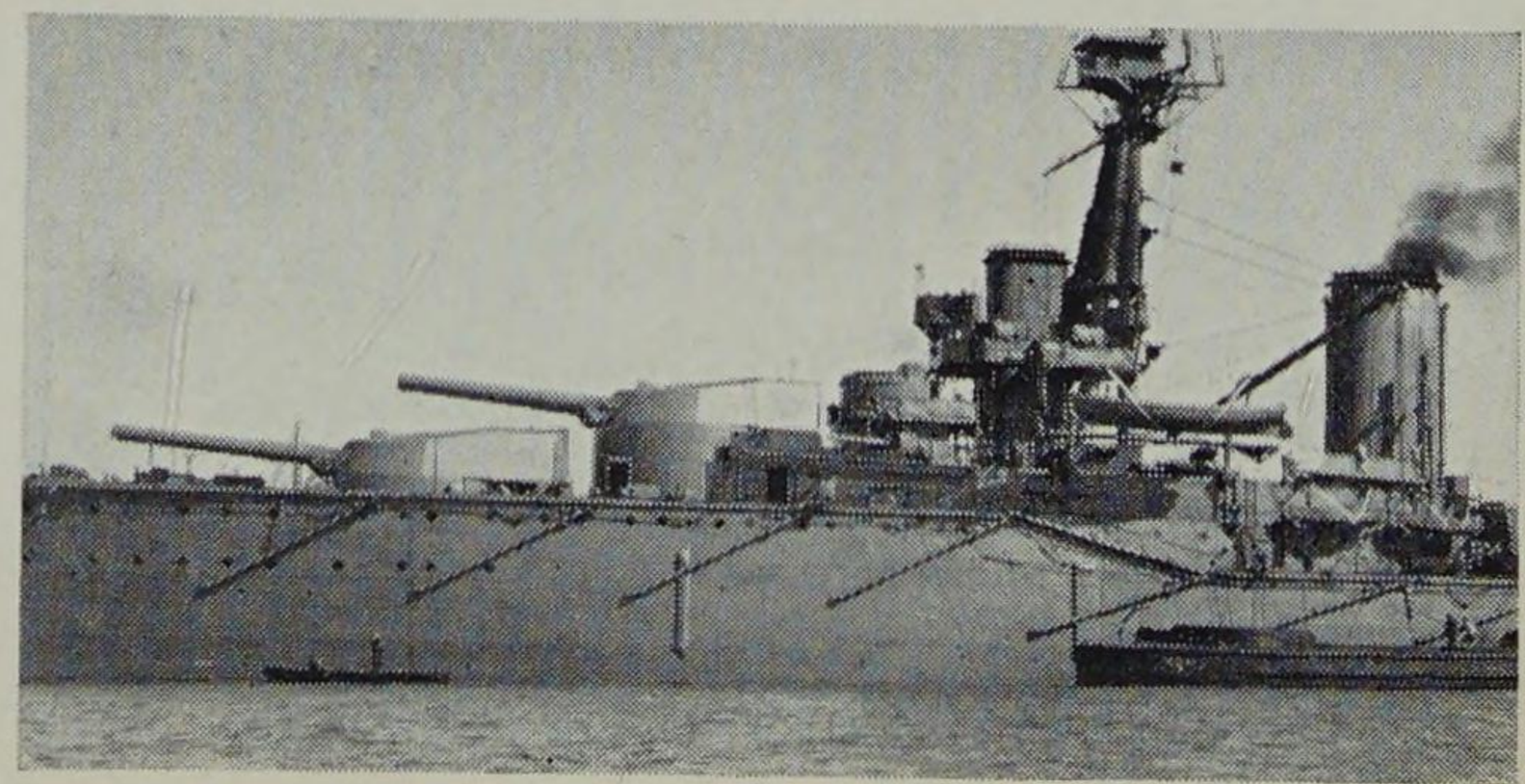
Name	Completed	Builder	Engines	
Agincourt	8/1914	AW.	V.	4th of name (1st 1796).

1914, 4th B.S. 1916, 1st B.S., Jutland. 1917, 2nd B.S. 1919, Discarded. 1921. Used for experiments. Sale and scrapped 1921.

BRITISH BATTLESHIPS with 13.5 in. GUNS.

These fourteen ships were all to the same general plan with five turrets on the centre line superimposed fore and aft. On account of this and the guns being larger than 12 in. they were popularly termed " super-Dreadnoughts ". Their maximum draught was 31-33 ft., as against 29-31 ft. on the 12 in. ships. The fuel carried by both groups was about 75% coal and 25% oil.

Above: H.M.S. *Agincourt* in 1918, after removal of tripod mainmast. She was originally ordered as the *Rio de Janiero* for Brazil, transferred to Turkey as the *Sultan Osman I*, and taken over by Britain on the outbreak of war. She was the only capital ship to have 14 big guns and 7 turrets.



An impression of power—the forward part of H.M.S. *Monarch*, showing the twin turrets which housed four of the ten 13.5 in. guns. [*R. Perkins*

The four ships of the Orion class on a North Sea Sweep. In the distance is the 6th Battle Squadron (U.S.A.). [I.W.M

ORION CLASS.

Length: 584 ft. *Beam:* 85 ft. *Displacement:* 22,500-25,000 tons.
Turbines: 4 screws. 27,000-33,000 h.p. 21-22 knots.
Guns: 10—13.5 in. 16—4 in.* *Torpedo tubes :* 3 (later 2)—21 in.
Armour: Belt 12 in., turrets 11 in. *Complement:* 800-900.
*Later 1—4 in. A.A., 1--3 in. A.A. added.

Name	Completed	Builder	Engines	
Orion	1/1912	P.Dy.	Wall.	4th of name (1st 1787).
Monarch	3/1912	AW.	HL.	5th of name (1st 1747).
Thunderer	6/1912	T.I.W.	T.I.W.	5th of name (1st 1760).
Conqueror	11/1912	WB.	WB.	8th of name (1st 1756).

Orion: 1914, 2nd B.S. 1916, Jutland. Sale and scrapped 1922-23.
Monarch: 1914, 2nd B.S. 1916, Jutland. 1925, Sunk as target.
Thunderer: The last big warship to be built on the Thames, where high rates forced shipbuilders to close down or move elsewhere. 1914, 2nd B.S. 1916, Jutland. 1920, Cadets training ship. Sale and scrapped 1926.
Conqueror: 1914, 2nd B.S. 1916, Jutland. Sale and scrapped 1922.

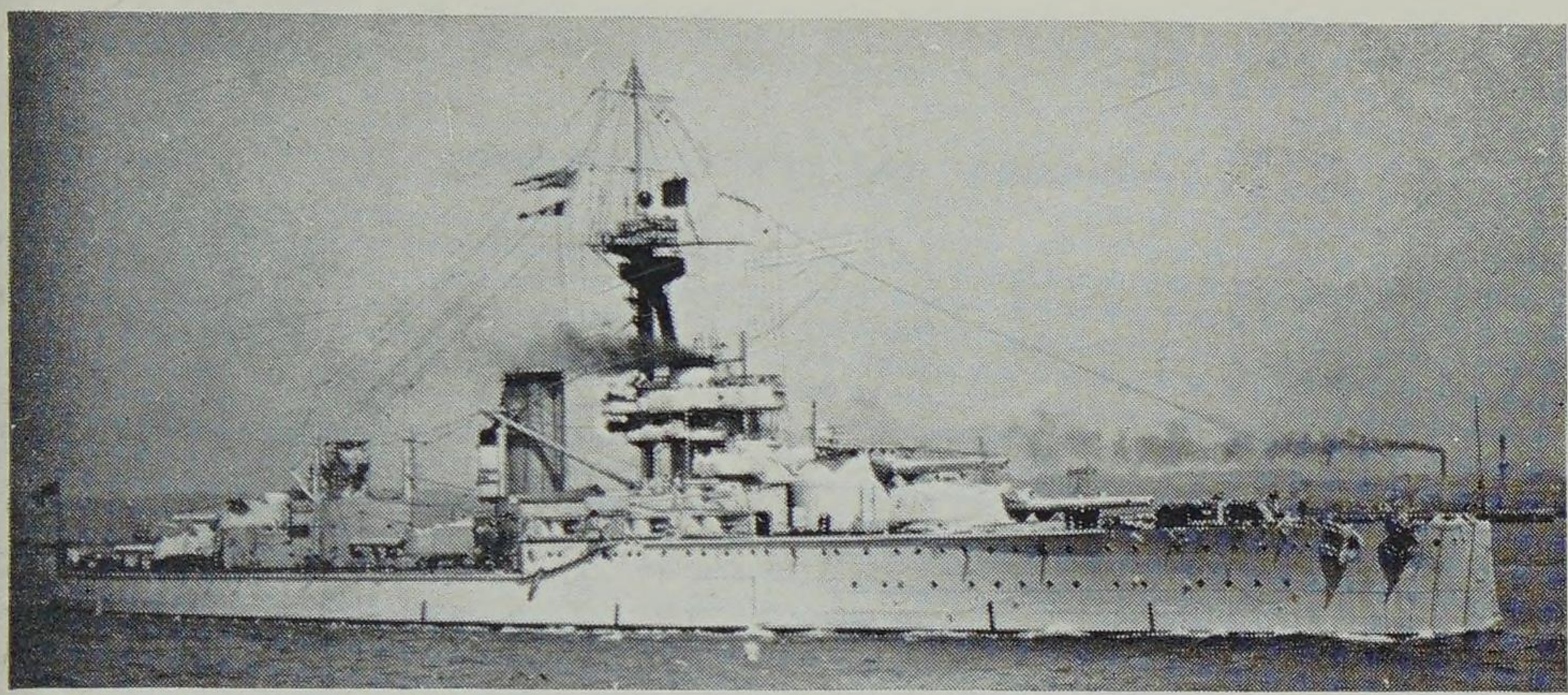
The next, " King George V ", class did not at first have tripod masts and various stiffening flanges were tried. They did not however effect the required stiffness and tripods were later fitted. H.M.S. *Centurion* was the first ship to have director-controlled secondary battery and searchlights. War experience was to prove this equipment essential. The 13.5 in. guns used 1,400 lb. shell against 1,250 lb. on the " Orions."

KING GEORGE V CLASS.

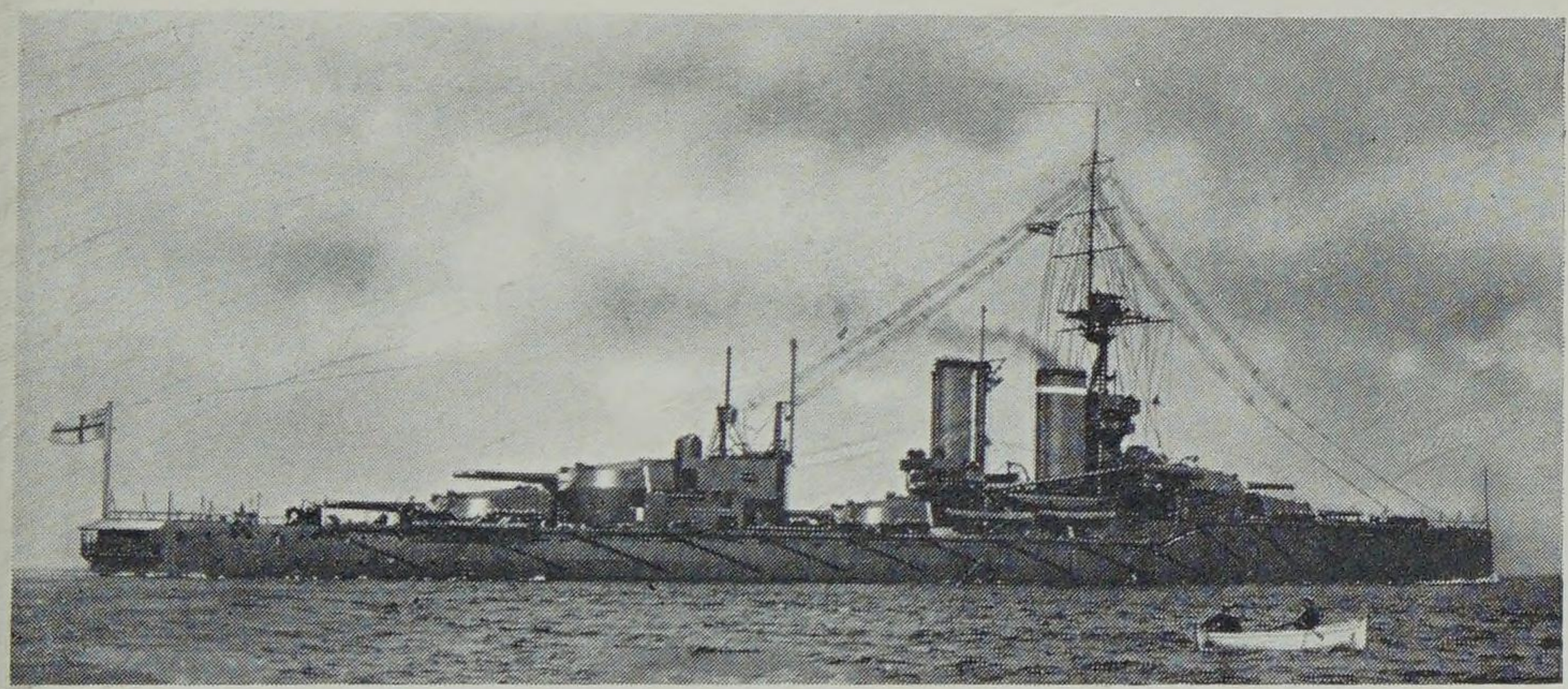
Length: 598 ft. *Beam:* 89 ft. *Displacement:* 23,000-25,500 tons.
Turbines: 4 screws. 31,000 h.p. 21-22 knots.
Guns: 10—13.5 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—21 in.
Armour: Belt 12 in., turrets 11 in. *Complement:* 812-900.
*Later 2—4 in. or 3 in. A.A. added.

Name	Completed	Builder	Engines	
King George V	11/1912	P.Dy.	HL.	1st of name
Centurion	5/1913	D.Dy.	HL.	11th of name (1st 1650).
Ajax	10/1913	Sc.	Sc.	6th of name (1st 1767).
Audacious	10/1913	CL.	CL.	3rd of name (1st 1785).

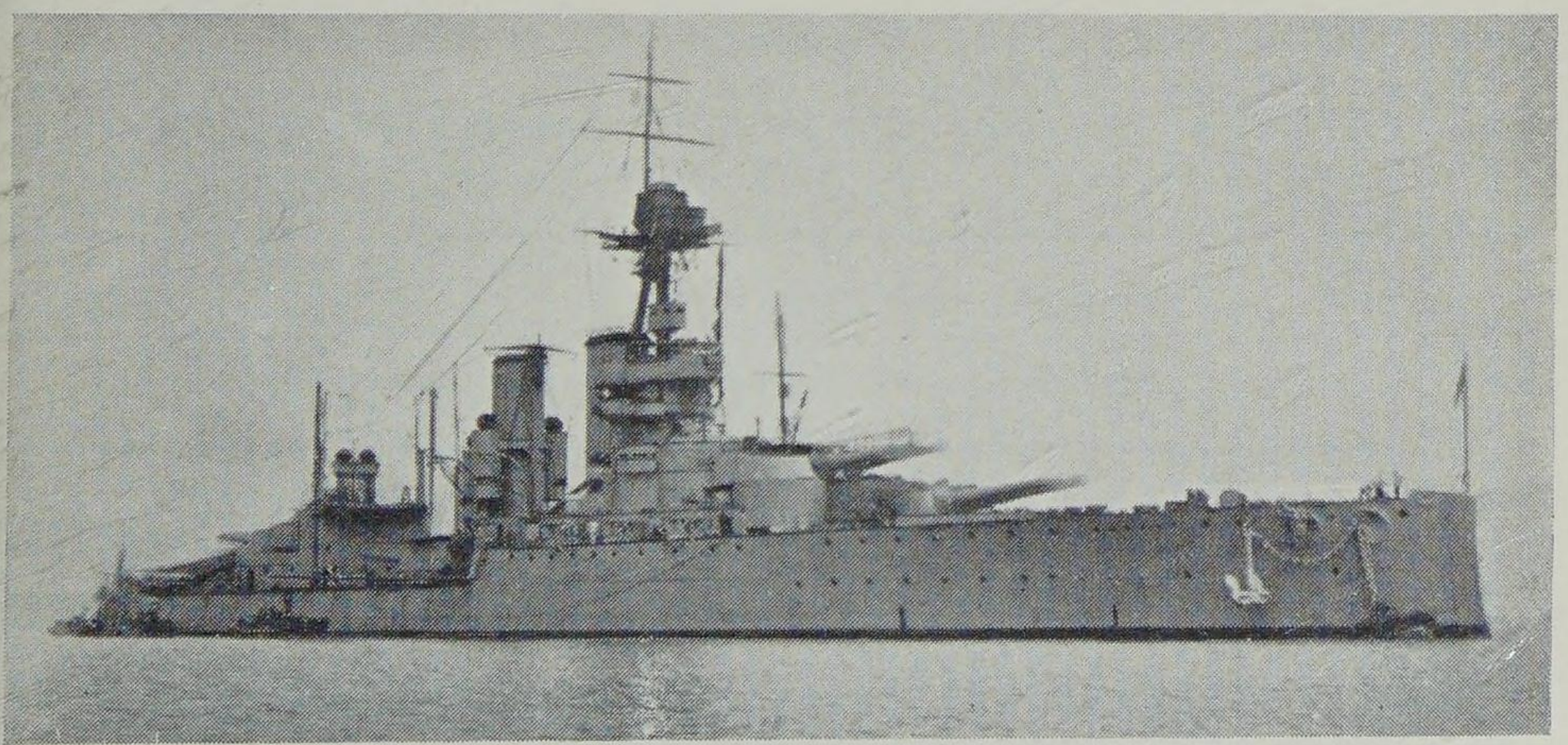
King George V: 1914, 2nd B.S. 1916, Jutland. 1919, Mediterranean. 1923, Reserve. Sale and scrapped 1926.
Centurion: 1914, 2nd B.S. 1916, Jutland. 1919, Mediterranean. 1924, Reserve. 1926, Radio-controlled target ship. 1941, Dummy of H.M.S. *Anson*. 1942, A.A. battery, Suez. 1944, Sunk as Normandy blockship.
Ajax: 1914, 2nd B.S. 1916, Jutland. 1919, Mediterranean including Black Sea operations. 1924, Reserve. Sale and scrapped 1926.
Audacious: 1914, 2nd B.S., mined and sunk by internal explosion off Lough Swilly.



H.M.S. *Conqueror* in 1918. [*H.S. & R.*



H.M.S. *Centurion* in 1914. [*N.P.C*



H.M.S. *King George V* as in 1918. [*Seward*

In the "Iron Duke" class the secondary armament was increased to 6 in. guns and they were the first of our big ships to mount A.A. guns when built.

IRON DUKE CLASS.

Length: 620 ft. *Beam:* 89½ ft. *Displacement:* 26,400-30,380 tons.
Turbines: 4 screws. 30,000 h.p. 21-22 knots.
Guns: 10—13.5 in. 12—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: 12 in. belt, 11 in. turrets. *Complement:* 995-1,022.

Name	Completed	Builder	Engines	
Iron Duke	3/1914	P.Dy.	CL.	2nd of name (1st 1870).
Marlborough	6/1914	D.Dy.	HL.	5th of name (1st 1669).
Benbow	10/1914	WB.	WB.	3rd of name (1st 1813).
Emperor of India	11/1914	V.	V.	1st of name.

Iron Duke: 1914, Flagship C. in C. 1916, Jutland; 2nd B.S. 1919, Mediterranean. 1926, Atlantic. 1933, Partly disarmed as training ship. 1939, Depot ship, Scapa. Sale and scrapped 1946.
Marlborough: 1914, 1st B.S. 1916, Jutland, torpedoed but returned under her own power. 1919, Mediterranean. 1926, Atlantic. Sale and scrapped 1932.
Benbow: 1914, 4th B.S. 1916, Jutland. 1919, Mediterranean. 1926, Atlantic. Sale and scrapped 1929-31.
Emperor of India: 1914, 4th B.S. 1919, Mediterranean. 1926, Atlantic. 1929, Used as target. Sale and scrapped 1931.

The *Erin* was ordered for Turkey as the *Reshadieh* and taken over at the outbreak of war. A fine ship, she differed from ours in having the centre (Q) turret mounted at upper deck level.

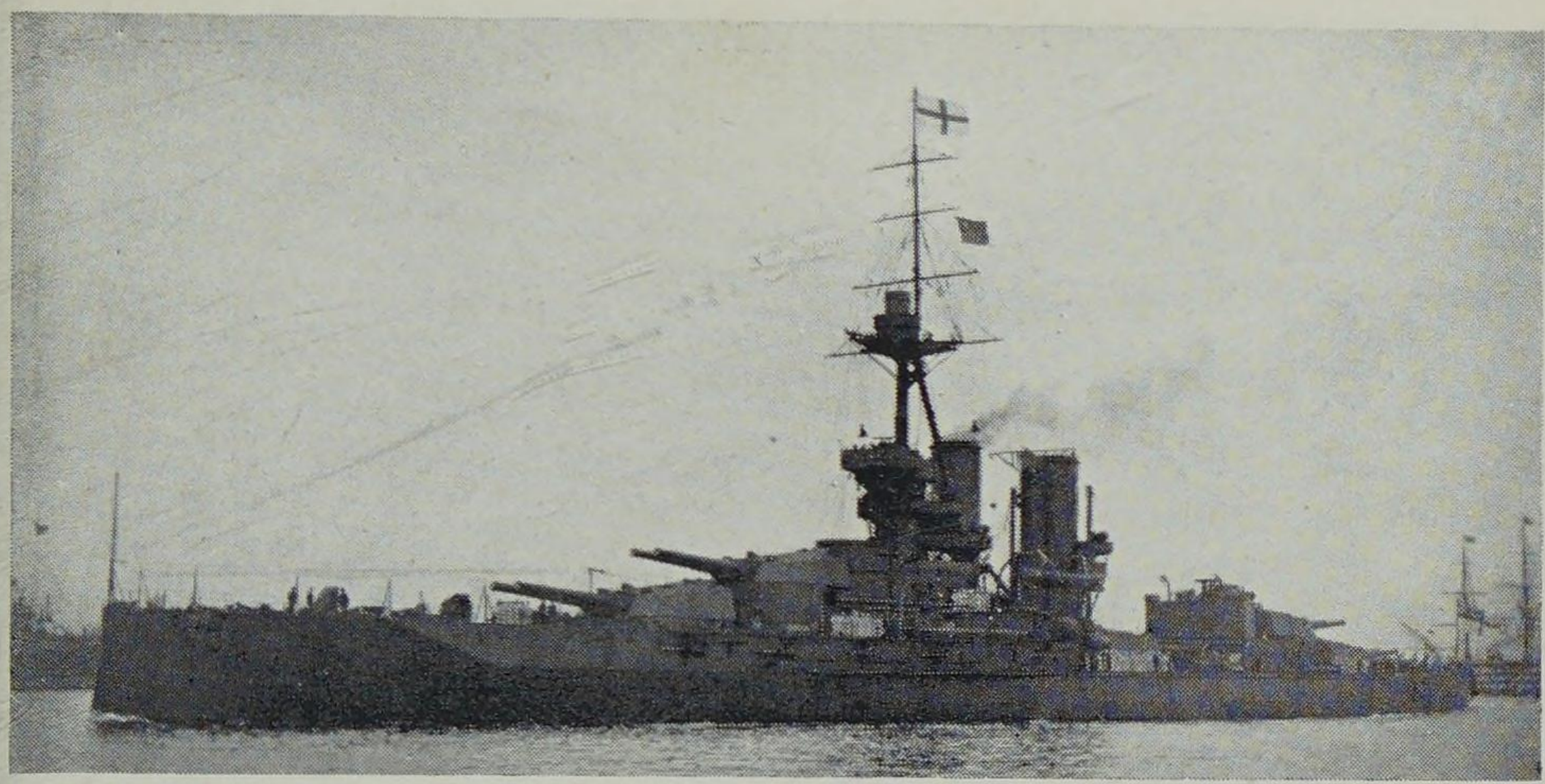
H.M.S. ERIN.

Length: 560 ft. *Beam:* 92 ft. *Displacement:* 25,250 tons.
Turbines: 4 screws. 26,500 h.p. 21 knots.
Guns: 10—13.5 in. 16—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 12 in., turrets 11 in. *Complement:* 1,130.

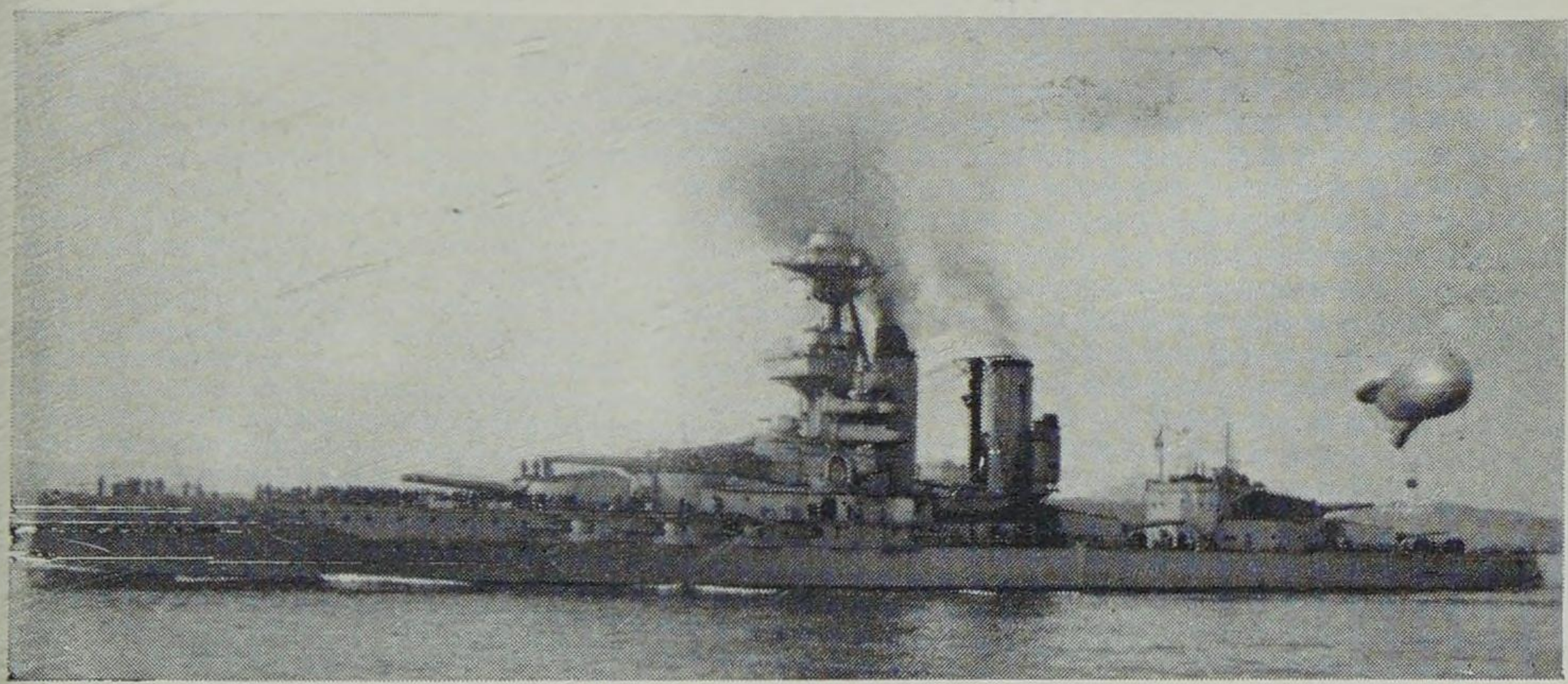
Name	Completed	Builder	Engines	
Erin	8/1914	V.	V.	1st of name.

1914, 2nd B.S. 1916, Jutland. 1919, Reserve. Sale and scrapped 1921.

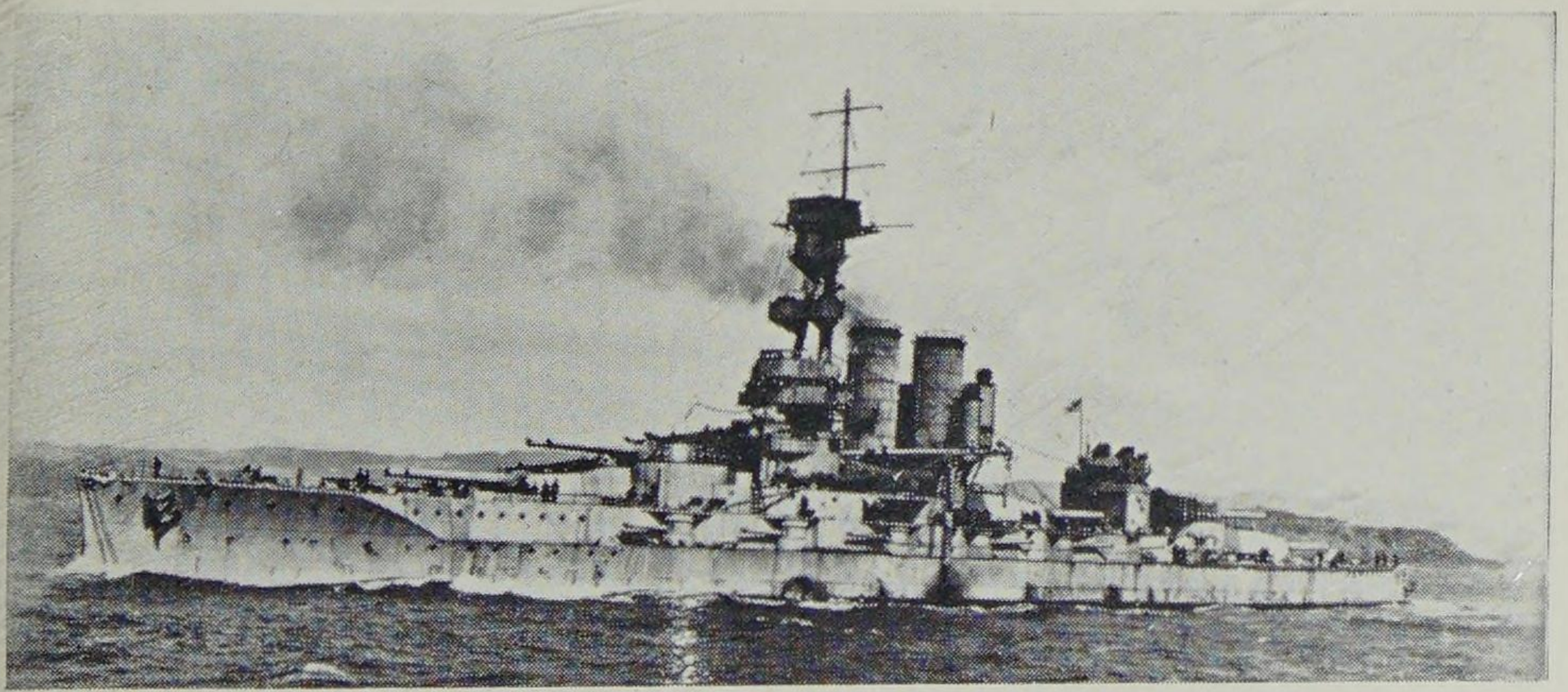
The *Canada* was also taken over in 1914, being on order for Chile as the *Almirante Latorre*. Generally similar but rather larger than our ships she mounted 14 in. guns in place of 13.5 in. A sister ship, the *Almirante Cochrane*, was eventually completed in 1924 as the aircraft carrier H.M.S. *Eagle*.



H.M.S. *Iron Duke*, Flagship of the C. in C., in 1914. [*Cozens*



H.M.S. *Emperor of India* in 1918. Note the kite balloon. [*H.S. & R.*

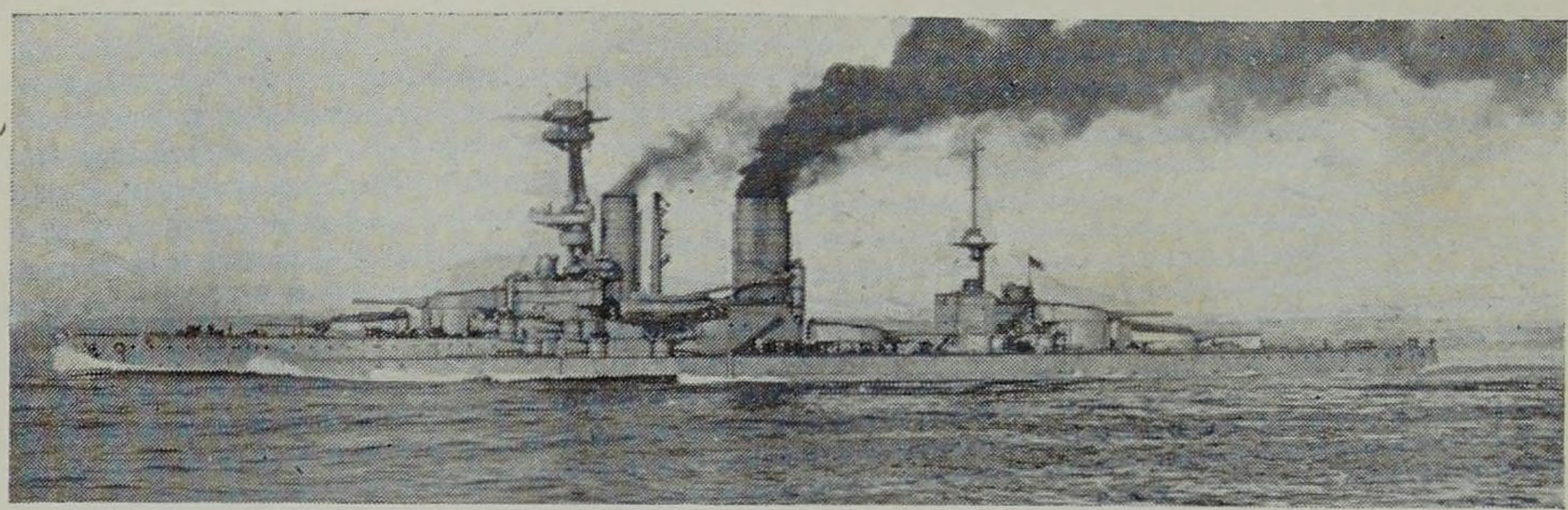


H.M.S. *Erin*.

THE BRITISH

GRAND FLEET IN 1914

[Press Pictorial Agency Ltd.



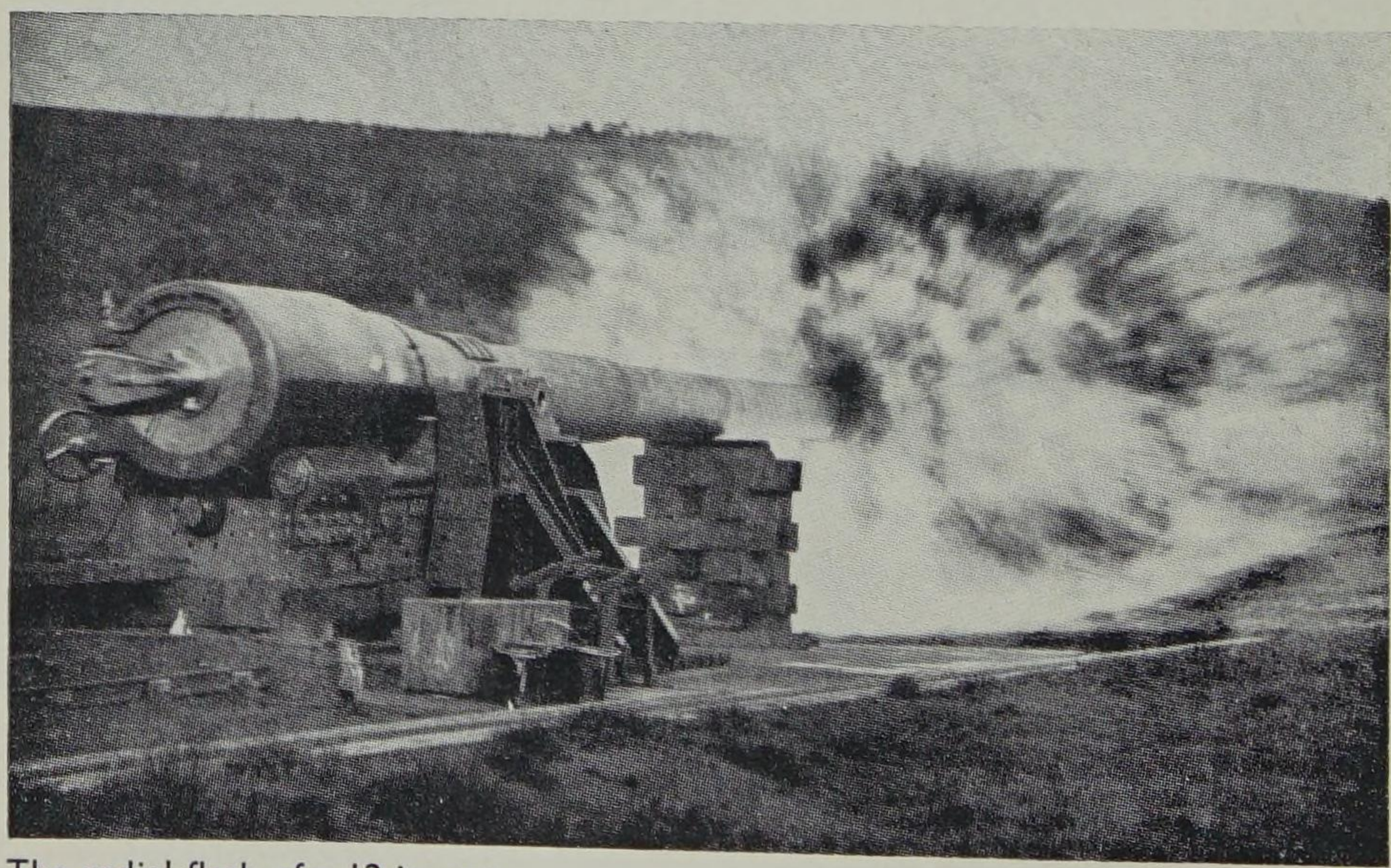
H.M.S. *Canada.* [N.P.C.

H.M.S. CANADA.

Length: 661 ft. *Beam:* 92½ ft. *Displacement:* 32,000 tons.
Turbines: 4 screws. 37,000 h.p. 23-24 knots.
Guns: 10—14 in. 12—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 9 in., turrets 10 in. *Complement:* 1,176.

Name	Completed	Builder	Engines	
Canada	9/1915	AW.	C.	3rd of name (1st 1765).

1915, 4th B.S. 1916, Jutland. 1920, Returned to Chile under her original name *Almirante Latorre* and still (1959) in existence.



The radial flash of a 12 in. gun. [*Vickers-Armstrongs Ltd*

Wartime Changes

Between 1914 and 1918 the appearance of many of the larger British warships underwent great changes sometimes altering them almost beyond recognition. These may be summarised:

Painting and Silhouette

1. 1914. Medium dark grey colour changed to light grey and funnel bands painted out. (Later pendant numbers were painted up for recognition purposes on large classes of destroyers and smaller vessels).

2. 1914-15. Deceptive painting took various forms:—
   (a) Mottling with white and/or dark grey.
   (b) Painting fake bow wave in white to give false impression of speed.
   (c) Painting upperworks and funnels partly white to confuse silhouette.
   (d) 1915-17. Painting dark oblong amidships to create distant impression of small ships alongside and ship therefore stationary. This device was revived in World War II.

3. 1914-15. Devices intended to confuse enemy range-finding.
   (a) Fixing spiral ribbon of canvas round topmasts.
   (b) Rigging triangular pieces of canvas to sides of funnels, sampson posts or other vertical sight lines.
   Both these proved ineffective and were abandoned.

4. Identity disguise by rigging extra (dummy) funnel, etc. This does not appear to have been used on big ships, but mention should be made of a complete fleet of dummy warships. Sixteen old merchant ships were skilfully reconstructed to resemble individual capital ships.

5. Camouflage and dazzle-painting was only applied to a few of the big ships in this book and details are given elsewhere.

Modifications begun before the War.

6. 1914-15. Very tall topmasts removed owing to improvements in wireless They were also an aid to enemy range finders.

7. 1914-16. Torpedo nets and booms discontinued and removed. They were not removed on German ships until after Jutland.

8. 1912 onward. Funnels near bridgework heightened to keep fumes clear of working spaces. The process was extended during the War and clinker screens were fitted for added protection.

9. Change over from coal or coal and oil to oil fuel only. Important advantages gained were:—
   (a) Control of smoke.
   (b) Greater heat value of fuel bunkered (and therefore increased range).
   (c) More rapid and clean re-fuelling. " Coaling ship " became a thing of the past.
   (d) Saving in man-power by reduction of stokers and elimination of trimmers.
   Against this the protective effect of bunkered coal was lost.

Modifications during the War.

10. After-bridges, stern-walks, flying-decks and other non-essential top hamper removed, especially if affected by gun blast. After 1916 improved screening against cordite fires.

11. 1916 on. Range clocks installed on masts, and end turrets painted with deflection scales thus giving target data to adjacent ships in case of signalling breakdown.

12. Installing Carley rafts and floats as additional life saving equipment.

13. Searchlights were regrouped on special funnel platforms, etc., and from 1917 were mounted on special towers with slit ports at the base to screen operators from gun flashes.

14. Paravane equipment added to cut cables of moored mines.

15. The fitting of ships with anti-torpedo bulges started in 1916.

Modifications due to increased importance of the Air.

16. Mounting of A.A. (anti-aircraft) guns and increased deck protection.

17. 1917 on. Carriage of spotting aircraft (Sopwith " Camels ") on turret runways which could be turned into the wind for taking off. Some smaller ships were provided with hangars.

18. Carriage of kite balloons which could be sent aloft on cables for observation purposes.

Before the War it was anticipated that actions would be fought at ranges up to 10,000 yards (6 miles), but under war conditions it was soon found that effective shooting could be maintained at 20,000 yards (12 miles) or more.

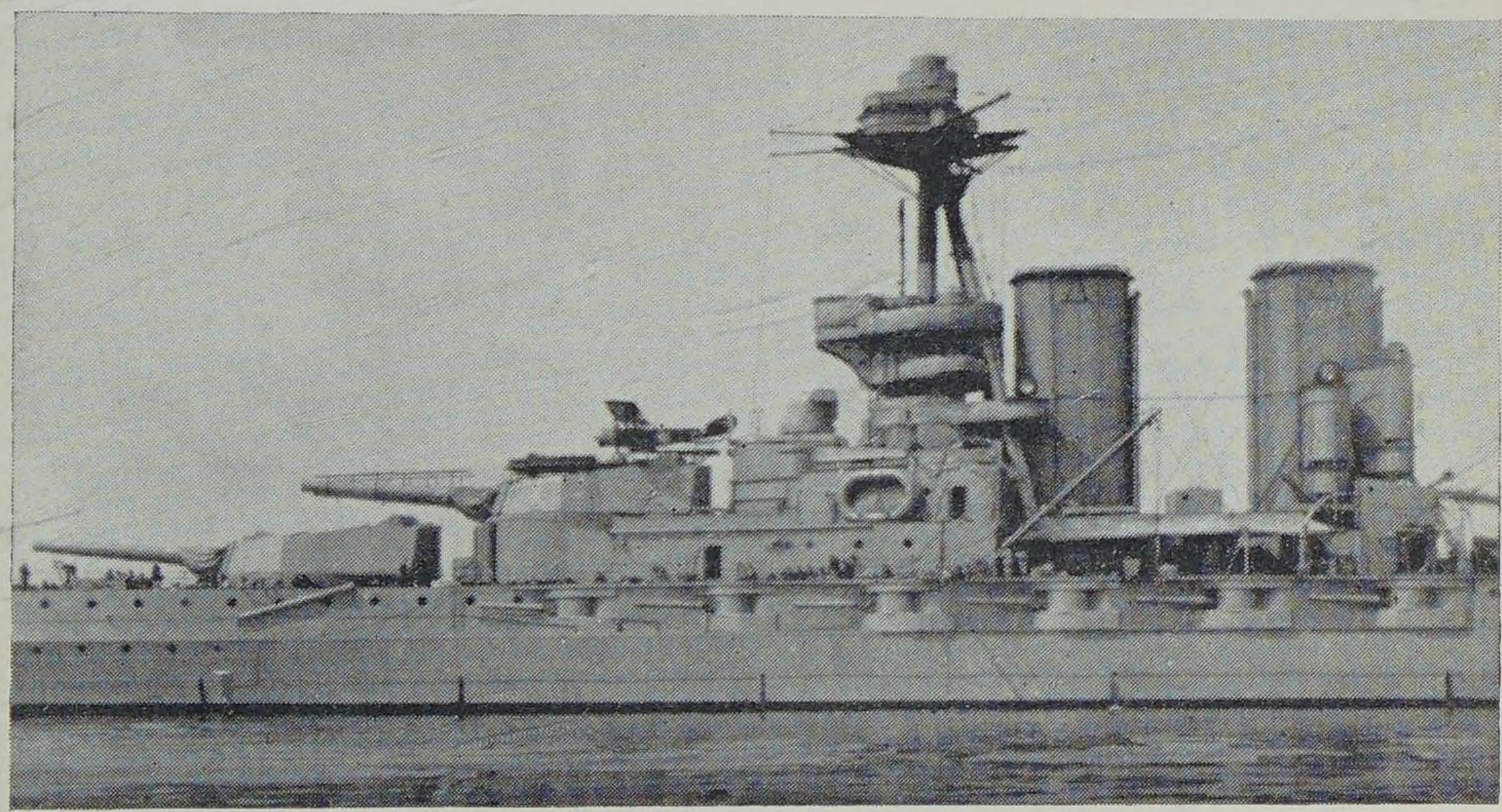
BRITISH BATTLESHIPS with 15in. GUNS.

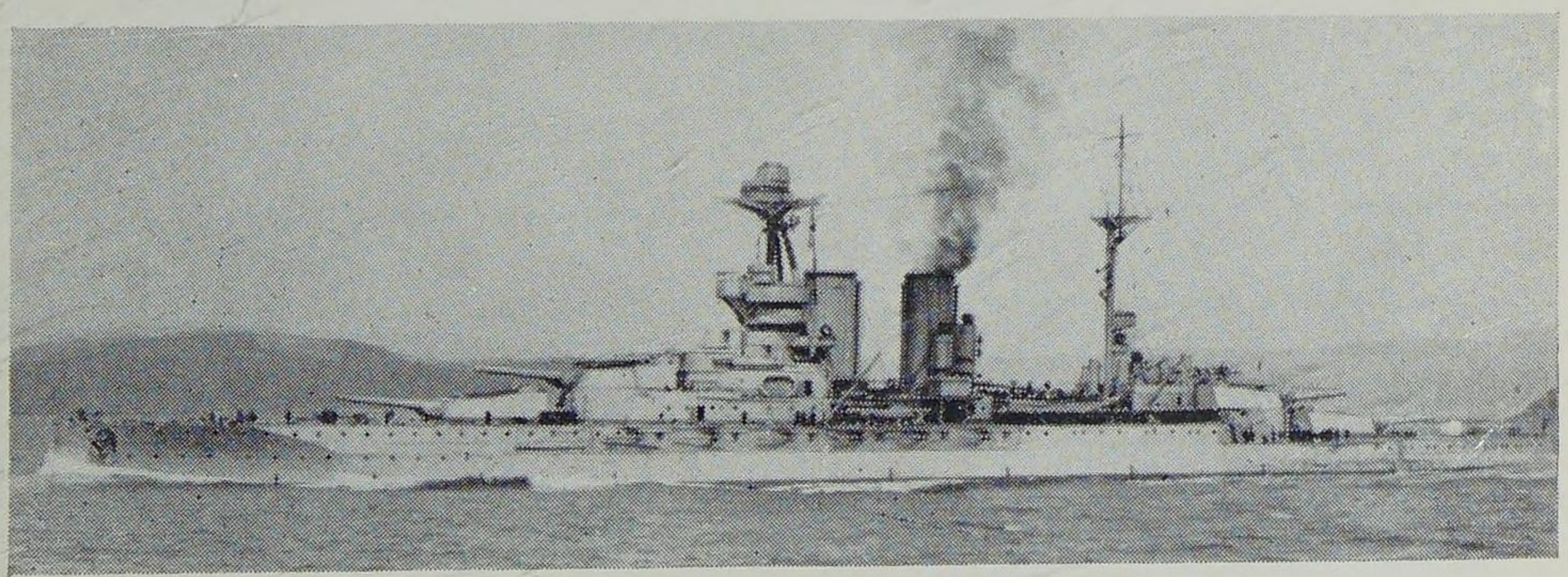
The " Queen Elizabeths " rank amongst the finest battleships ever built and were certainly the finest when built. Their new 15 in. guns proved to be about the best heavy guns mounted in the fleet. An extra four knots enabled them to act as a link between the Battle Cruisers and Battle Fleet and they rendered valiant and most effective support to the former at Jutland. They were oil-fired, coal being used for auxiliary purposes only and geared cruising turbines were installed for the first time. H.M.S. *Queen Elizabeth* was the only one to carry at first the extra four 6 in. guns aft as designed. Reconstructed between the Wars, they once again performed yeoman service in World War II.

Facing page: Top: H.M.S. *Queen Elizabeth* in 1918. The Fleet Flagship at Rosyth. [*I.W.M.*

Centre: H.M.S. *Warspite*—note spotting aircraft. [*Seward*

Bottom: H.M.S. *Valiant*. [*H.S. & R*





THE QUEEN ELIZABETH CLASS.

Length: 640 ft. *Beam:* 90½ ft. *Displacement:* 31,000-33,000 tons.
Turbines: 4 screws. 75,000 h.p. 25 knots.
Guns: 8—15 in. 12—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 13 in., turrets 11 in. *Complement:* 955-1,016.

Name	Completed	Builder	Engines	
Queen Elizabeth	1/1915	P.Dy.	Wal.	1st of name.
Warspite	3/1915	D.Dy.	HL.	6th of name (1st 1596).
Barham	10/1915	C.	C.	4th of name (1st 1811).
Valiant	2/1916	F.	F.	7th of name (1st 1759).
Malaya	2/1916	VA.	Wal.	1st of name.

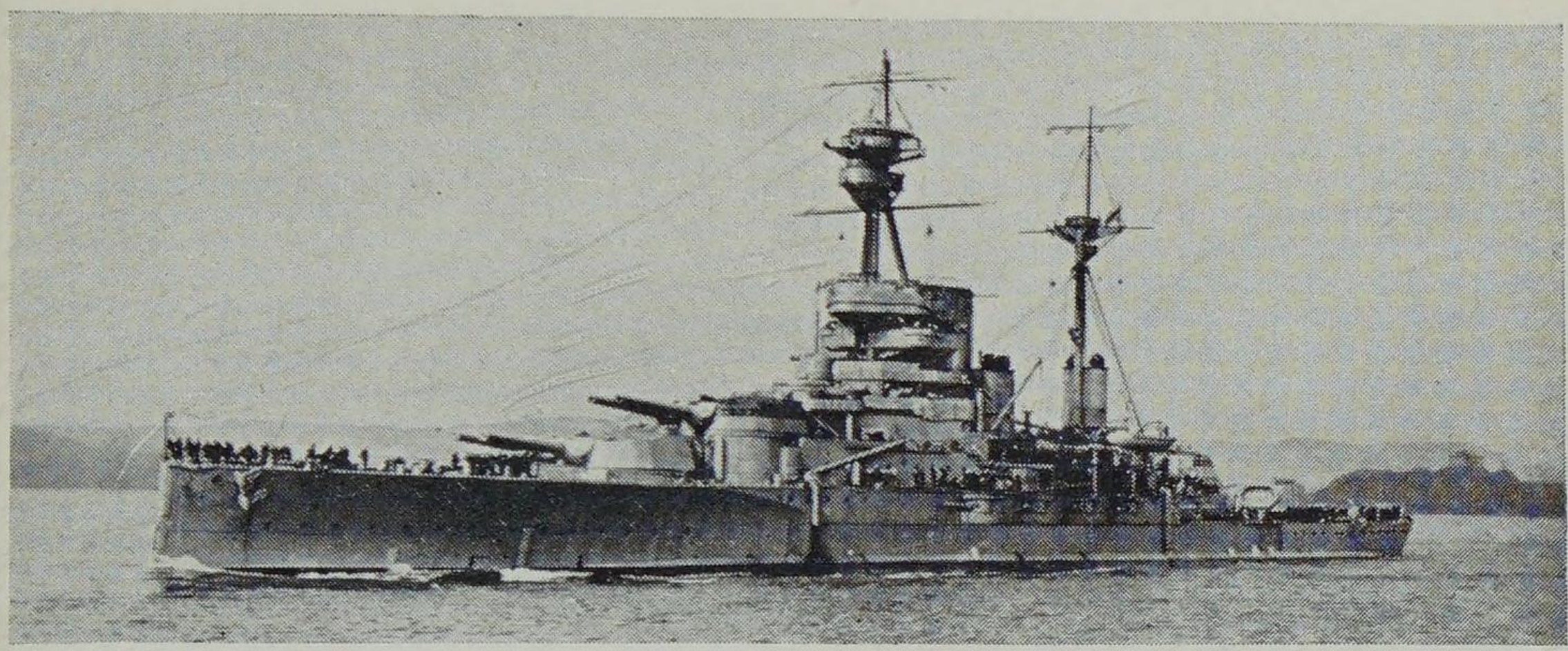
Queen Elizabeth: 1915, Dardanelles, 5th B.S. 1916, (Under refit at time of Jutland). Flagship C. in C. Sir David Beatty. 1918, Surrender of High Seas Fleet. (Subsequently reconstructed 1937-40, served throughout World War II and was sold in 1948.)
Warspite: 1915, 5th B.S. 1916, Jutland. 1919, Atlantic, etc. (Subsequently reconstructed 1934-7, served throughout World War II, sale and scrap 1946-7 and went ashore at Prussia Cove on way to shipbreakers. Dismantled at Prussia Cove.)
Barham: 1915, 5th B.S. 1916, Jutland. 1920, Atlantic, etc. (Subsequently served in World War II. 1941, hit by three torpedoes from U-boat and blew up.)
Valiant: 1916, 5th B.S., Jutland. 1919, Atlantic, etc. (Subsequently reconstructed 1937-39, served throughout World War II and was sold in 1948.)
Malaya: Gift of the Malayan Rulers. 1916, 5th B.S., Jutland. 1921, Visited Malaya, Atlantic, etc. (Subsequently reconstructed 1934-36, served throughout World War II and was sold in 1948.)

As ordered, the " Royal Sovereign " class consisted of seven ships, but two of them, *Repulse* and *Renown*, were redesigned as battle cruisers. Less graceful and speedy than the " Queen Elizabeths " they were massive and powerful ships. They were oil-fired throughout, although originally designed for coal, on the grounds that oil might be in short supply in wartime. H.M.S. *Ramillies* was the first large ship to be built with anti-torpedo bulges.

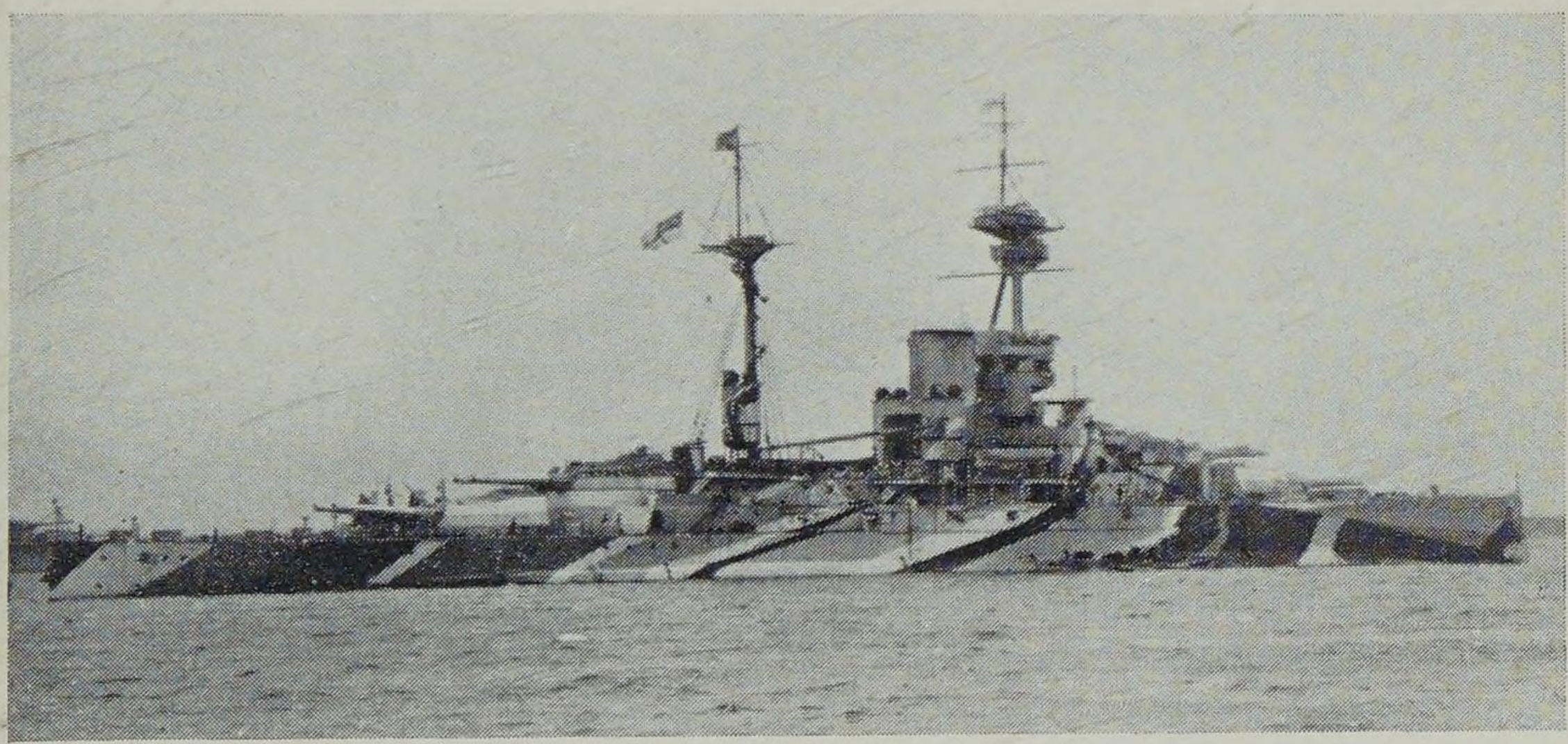
ROYAL SOVEREIGN CLASS.

Length: 624 ft. *Beam:* 88½ ft. *Displacement:* 31,250-33,500 tons.
Turbines: 4 screws. 40,000 h.p. 21-23 knots.
Guns: 8—15 in. 14—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 13 in., turrets 13 in. *Complement:* 937-997.

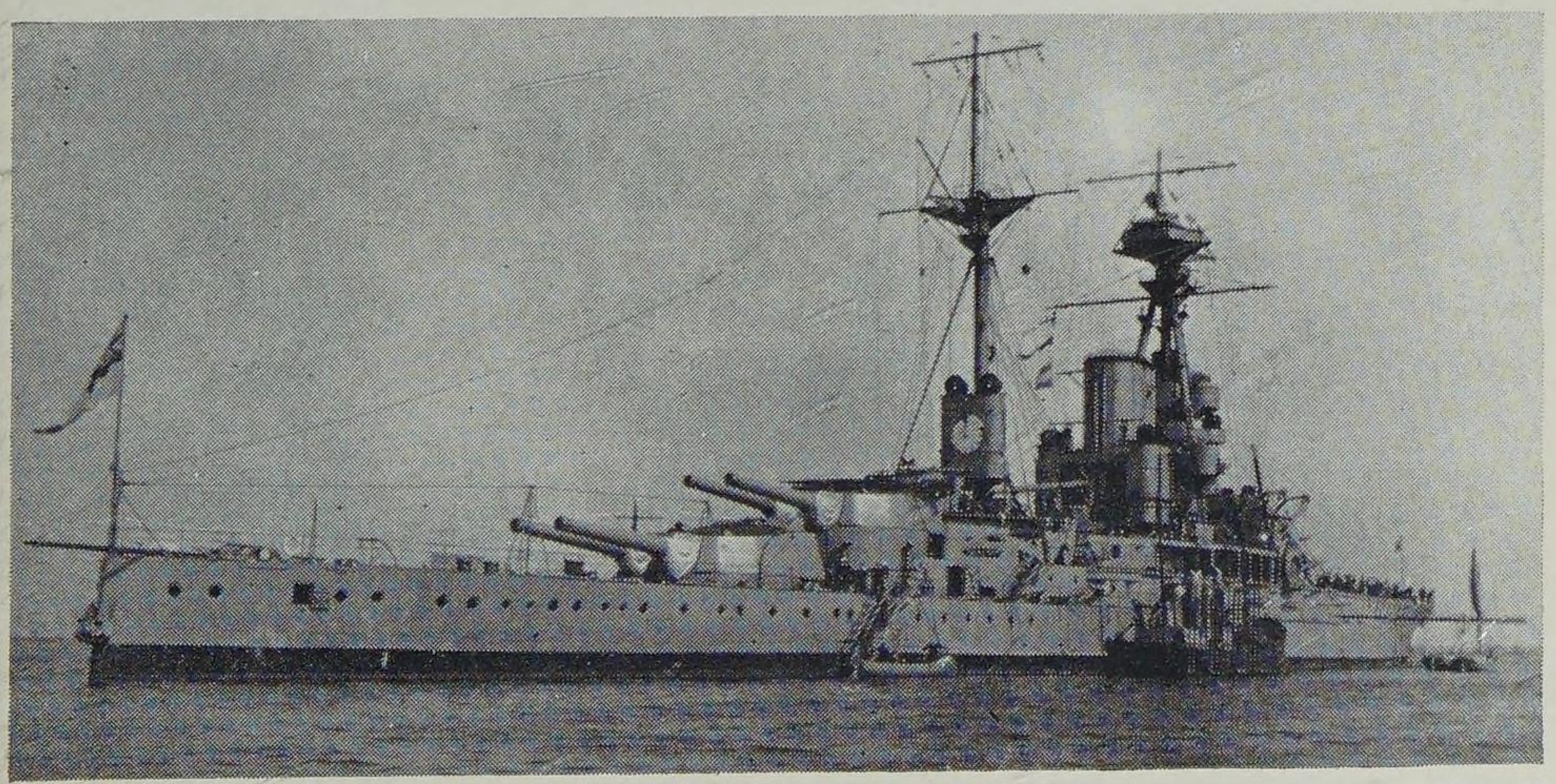
Name	Completed	Builder	Engines	
Revenge	3/1916	V.	V.	10th of name (1st 1575).
Royal Sovereign	5/1916	P.Dy.	Par.	7th of name (1st 1635).
Royal Oak	5/1916	D.Dy.	HL.	7th of name (1st 1664).
Resolution	12/1916	Pal.	Pal.	12th of name (1st 1650).
Ramillies	9/1917	WB.	WB.	5th of name (1st 1706).



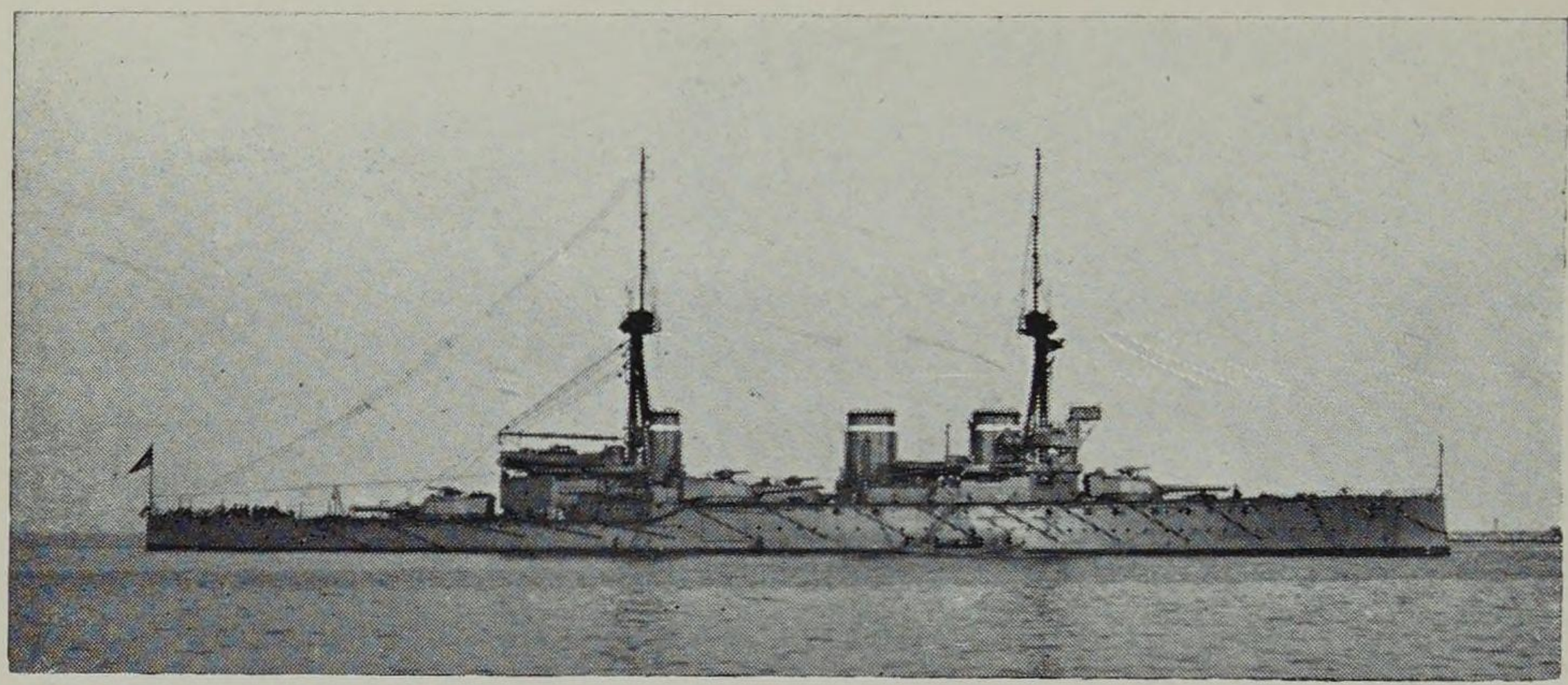
H.M.S. *Revenge*.



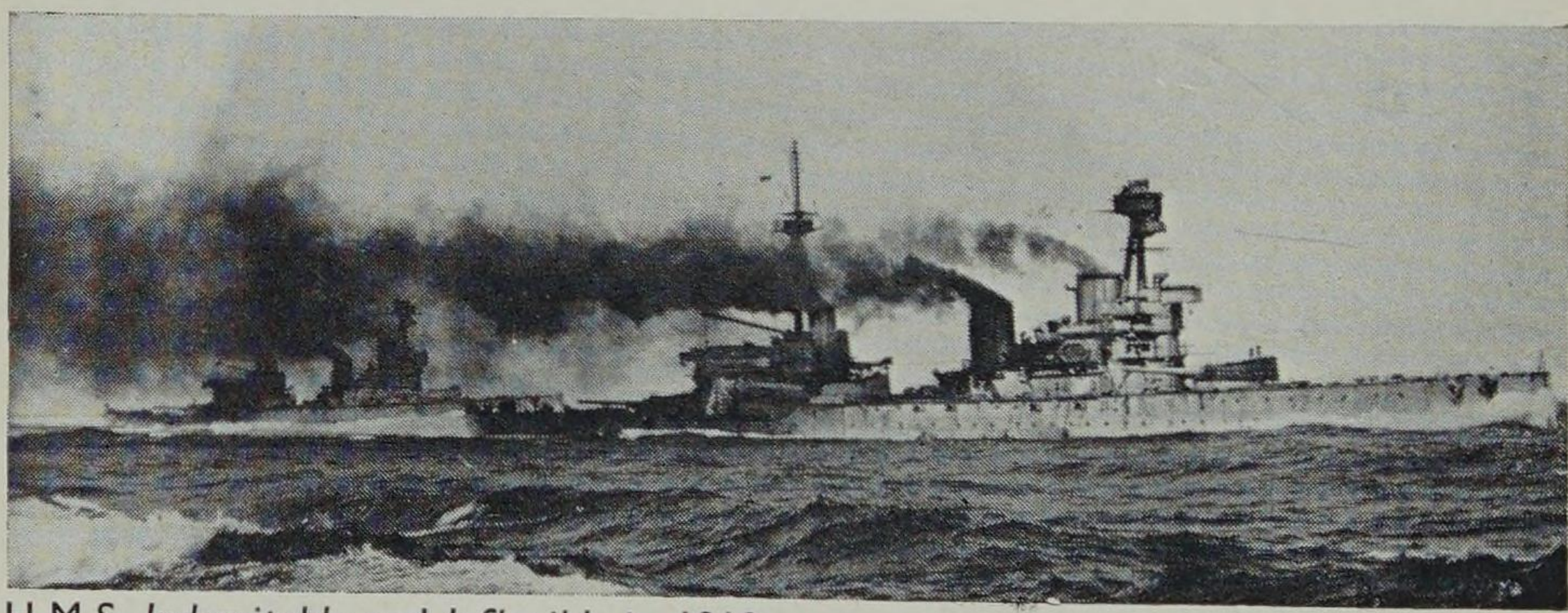
H.M.S. *Revenge* dazzle painted.



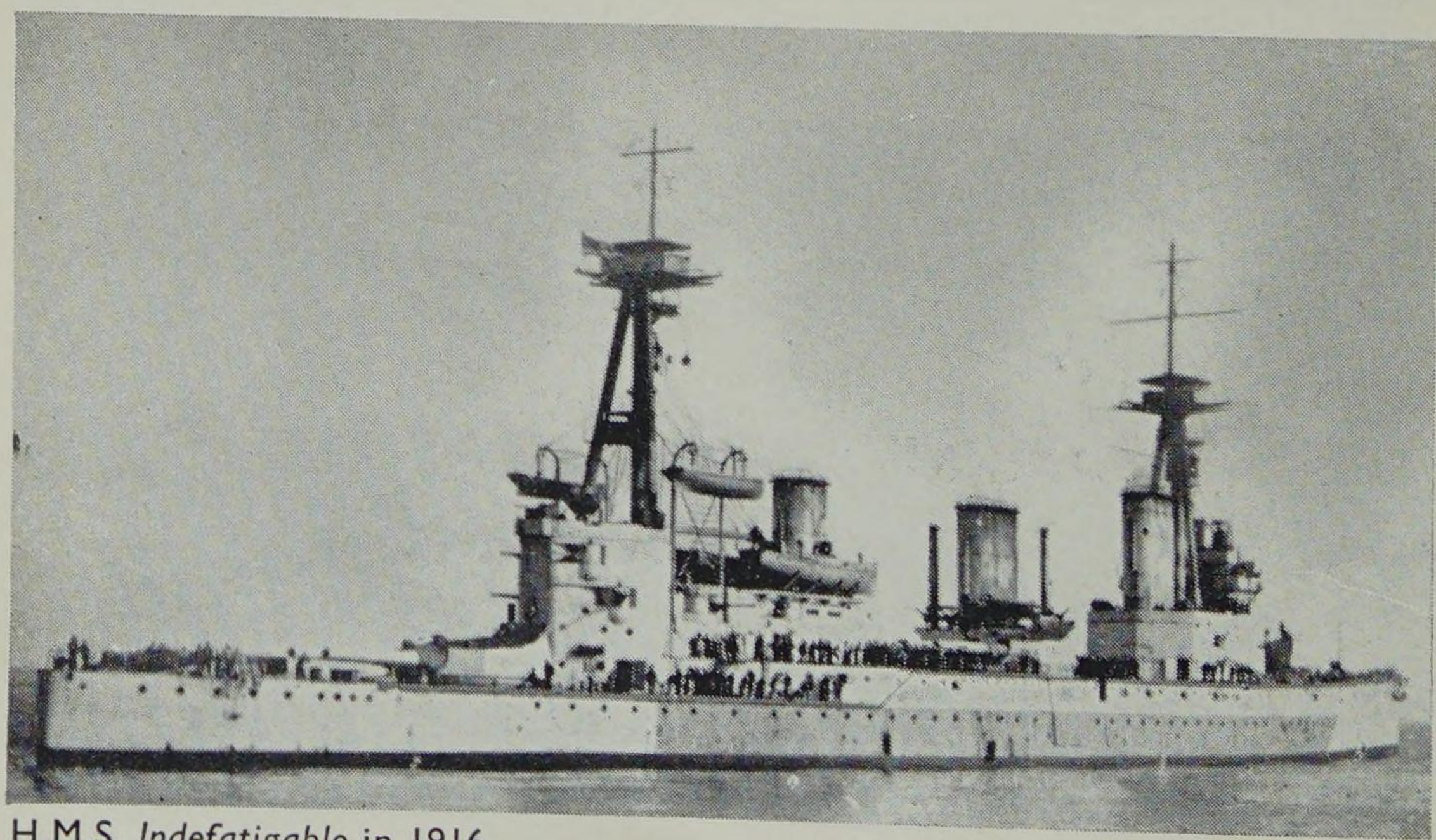
H.M.S. *Royal Oak* in 1920. [Seward



H.M.S. *Invincible* in 1912. [Seward



H.M.S. *Indomitable* and *Inflexible* in 1918. [N.P.C



H.M.S. *Indefatigable* in 1916. [I.W.M.

Revenge: 1916, 1st B.S., Jutland. 1917-18, Dazzle painted. 1920, Mediterranean, etc. (Subsequently served throughout World War II and was sold in 1949.)
Royal Sovereign: 1916, 1st B.S. 1917-18, Dazzle painted. 1919, Atlantic, etc. (Subsequently served in World War II, 1944 loaned to the U.S.S.R. (as the *Archangelsk*) and sold on her return in 1949.)
Royal Oak: 1916, 1st B.S., Jutland. 1919, Atlantic, etc. (Subsequently in 1939 was hit by 5 torpedoes from U-boat at Scapa and sunk.)
Resolution: 1916, 1st B.S. 1919, Atlantic, etc. (Subsequently served throughout World War II and was sold in 1948.)
Ramillies: Delayed by damage at launch. 1917, 1st B.S. Experimentally camouflaged in pink. 1917-18, Dazzle painted. 1920, Mediterranean, etc. (Subsequently served throughout World War II and was sold in 1948.)

British Battle Cruisers

The original British conception of the battle cruiser was a combination of speed and gun power with protection a poor third. Such a ship would be able to destroy inferior ships and keep out of range of punishment herself. This view was fully justified at the Battle of the Falkland Is., but it was the only important action of its kind. As it happened the battle cruisers bore the brunt of the heavy fighting throughout the War as the spear-head of the Grand Fleet. The Germans, without distant commitments, designed theirs as the vanguard of the High Seas Fleet with rather less speed and considerably better protection.

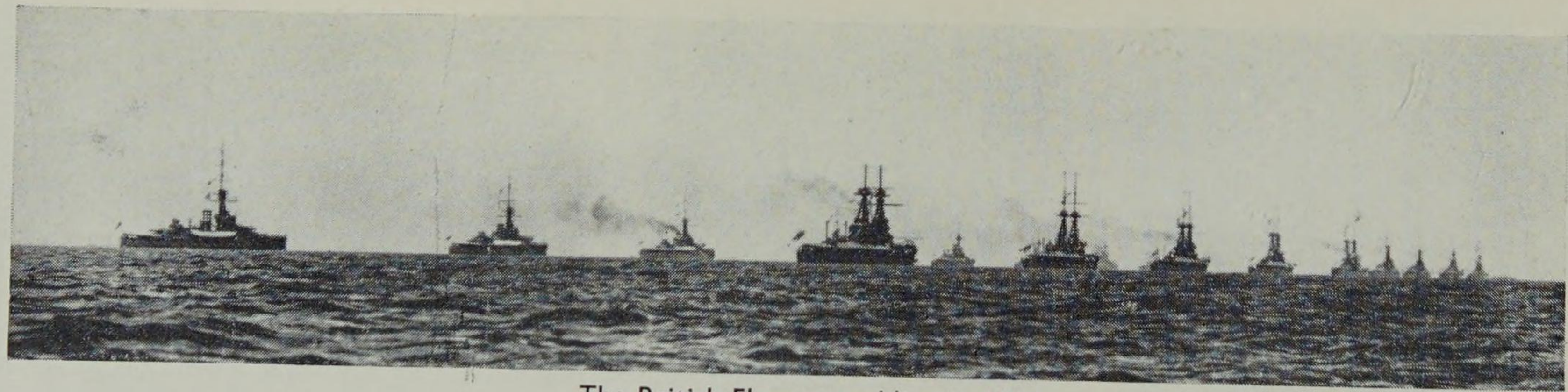
The risk of fire spreading from cordite ignited by shell burst or other causes was also underestimated by us. Even with their superior precautions the German battle cruiser *Seydlitz* nearly blew up from this cause at the Dogger Bank action in 1915 and further preventive measures were taken. It is perhaps significant that all our war losses in big ships (*Audacious*, *Indefatigable*, *Invincible*, *Queen Mary* and *Vanguard*) were finally due to internal explosions, whereas no large German ships were lost from this cause.

Battle cruisers generally resembled contemporary battleships with one turret less and much lighter armour but were considerably longer and much more powerfully engined. The first, the three Invincibles of 1908, created a tremendous impression, but the wing turret arrangement was awkward and limited the broadside to 6—12 in.

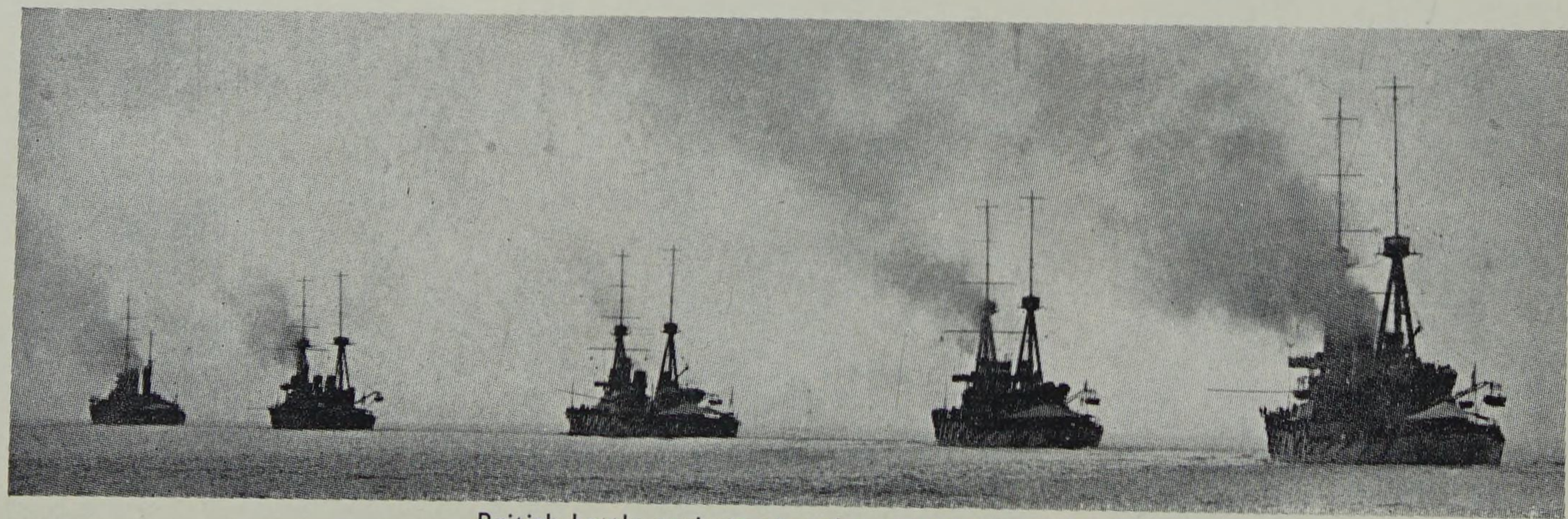
INVINCIBLE CLASS.

Length: 567 ft. *Beam:* 79 ft. *Displacement:* 17,250-20,000 tons.
Turbines: 4 screws. 41,000 h.p. 25-26 knots.
Guns: 8—12 in. 16—4 in.* *Torpedo tubes:* 4 (later 3)—18 in.
Armour: Belt 6 in., turrets 7 in. *Complement:* 750-837.
*Later altered to 12—4 in., 1—4 in. A.A., 1—3 in. A.A.

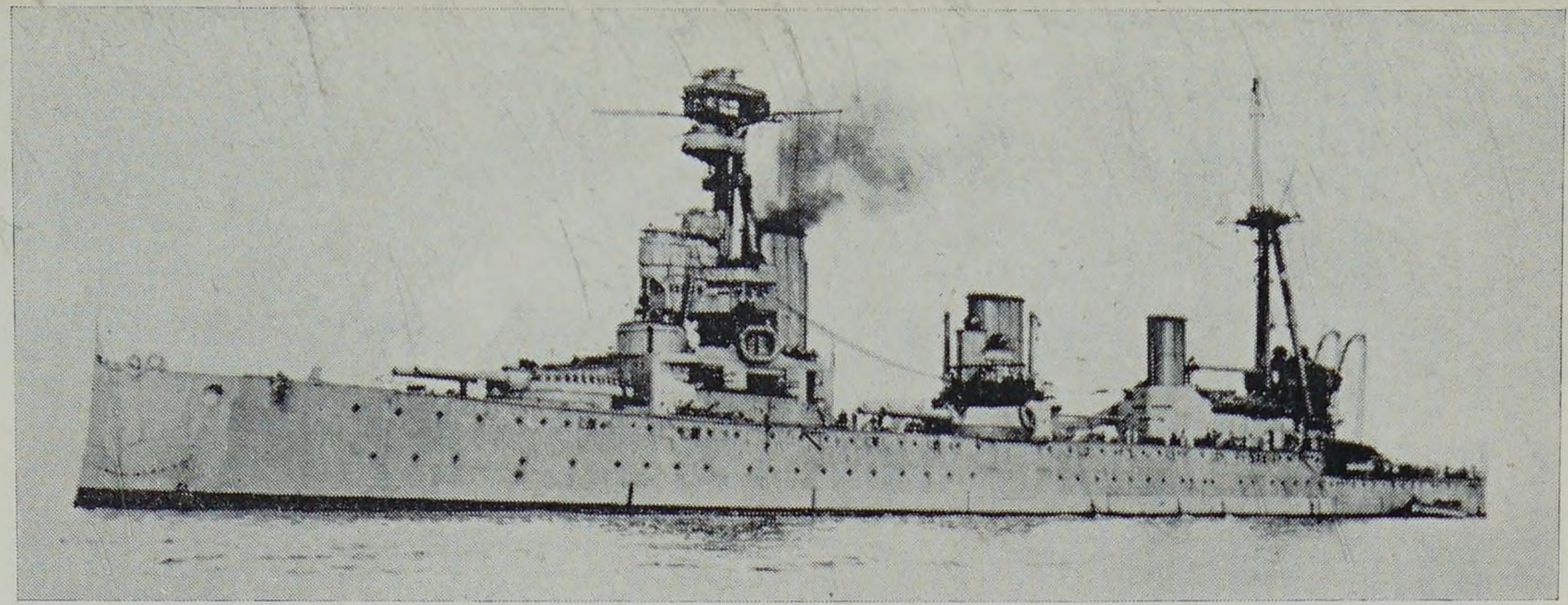
Name	Completed	Builder	Engines	
Invincible	3/1908	AW.	H.&T.	8th of name (1st 1694).
Indomitable	6/1908	F.	F.	1st of name.
Inflexible	10/1908	C.	C.	5th of name (1st 1776).



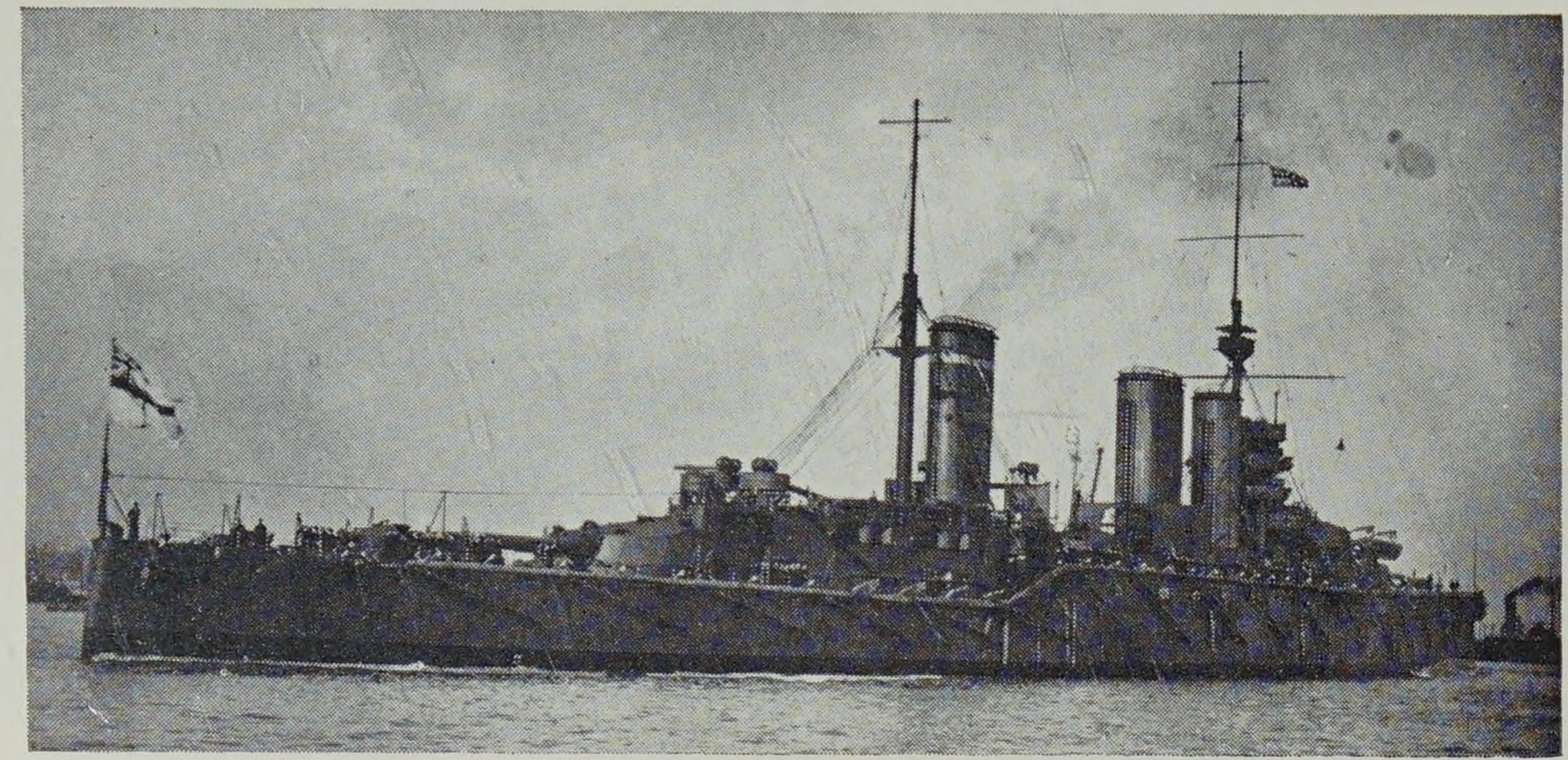
The British Fleet assembling in 1914.



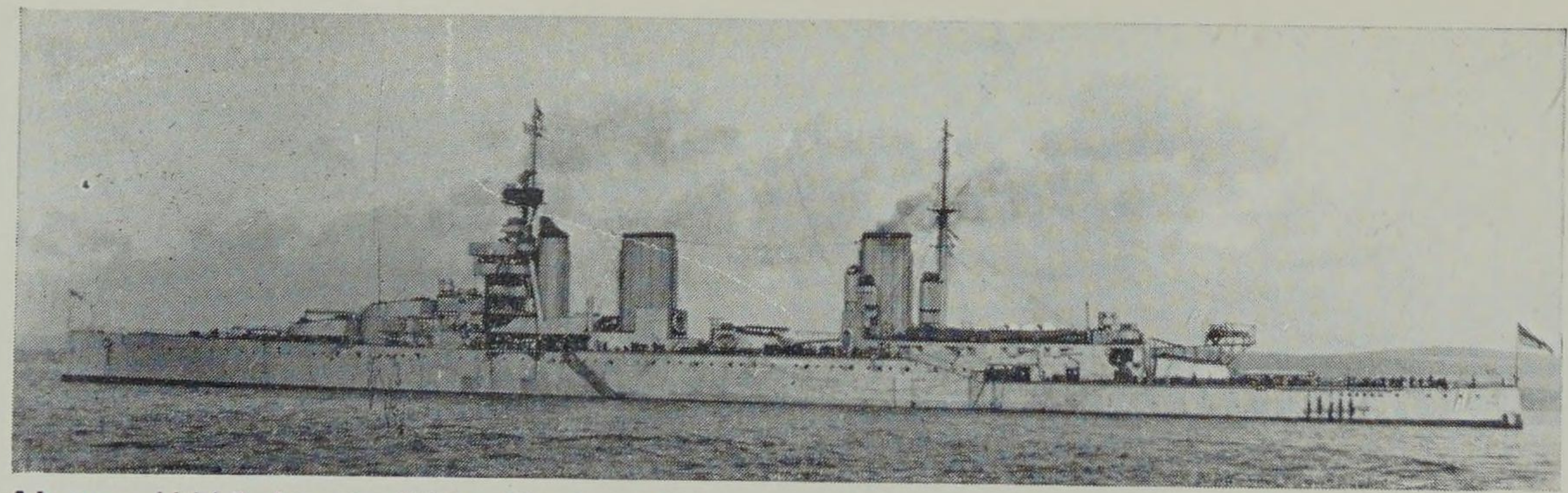
British battle cruisers steaming away to manoeuvres.



H.M.S. *New Zealand* in 1917. Note White Ensign painted on foretop. [*I.W.M.*



H.M.S. *Princess Royal* in 1914.
[*Cozens*



Above: H.M.S. *Lion* in 1920. Flagship of the battle cruiser force 1915, and the 1st Battle Cruiser Squadron in 1919. [*Seward*

Below: H.M.S. *Queen Mary*, battle cruiser lost at Jutland in 1916. [*I.W.M.*

Invincible: 1914, Heligoland Bight, Falkland Is. (flagship). 1915, 2nd B.S. 1916, 3rd B.S., sunk at Jutland.
Indomitable: 1914, Mediterranean. 1915, Dogger Bank. 1916, 3rd B.C.S., Jutland. 1919, Reserve. Sale and scrapped 1920-22.
Inflexible: 1914, Mediterranean. Falkland Is. 1915, Dardanelles (mined), 3rd B.C.S. 1916, Jutland. 1919, Reserve. Sale and scrapped 1920-22.

In the next class ("Indefatigable") wing turrets were still retained but better spread out, making the eight gun broadside possible.

INDEFATIGABLE CLASS.

Length: 590 ft. *Beam:* 80 ft. *Displacement:* 18,750-20,000 tons.
Turbines: 4 screws. 44,000 h.p. 25-27 knots.
Guns: 8—12 in. 16—4 in.* *Torpedo tubes:* 3 (later 2)—21 in.
Armour: belt 6 in., turrets 7 in. *Complement:* 800-860.
*Later 14—4 in., 1—4 in. A.A., 1—3 in. A.A. (Australia), 10—4 in., 1—4 in. A.A. (N.Z.).

Name	Completed	Builder	Engines	
Indefatigable	2/1911	D.Dy.	C.	4th of name (1st 1784).
New Zealand	1/1912	F.	F.	2nd of name (1st 1902).
Australia	6/1913	C.	C.	2nd of name (1st 1886).

Indefatigable: 1914, Mediterranean. 1915, Dardanelles. 1916, 2nd B.C.S., Sunk at Jutland.
New Zealand: Presented by New Zealand. 1914, 1st B.C.S., Heligoland Bight. 1915, Dogger Bank. 1916, Jutland, 2nd B.C.S. 1919, Tour of Dominions. 1921, Drill ship. Sale and scrapped 1922.
Australia: 1914, Pacific, etc. 1915, 2nd B.C.S. flagship. (1916, under refit at time of Jutland.) 1919, Flagship R.A.N. 1924, towed out and sunk off Sydney.

The " Lion " class or " Splendid Cats ", as battle cruiser equivalents of the " super-Dreadnoughts ", were the largest warships so far laid down. As first built, H.M.S. *Lion* had a tripod foremast just abaft the first funnel, but at full power the control top and parts of the bridgework became untenable. Higher funnels were therefore fitted, with a pole foremast forward of the funnels, which was later stiffened with tripod legs.

LION CLASS.

Length: 700 ft. *Beam:* 88½ ft. *Displacement:* 29,700 tons.
Turbines: 4 screws. 70,000-80,000 h.p. 28-32 knots.
Guns: 8—13.5 in. 16—4 in. (+ 2—3 in. A.A. later). *Torpedo tubes:* 2—21 in.
Armour: Belt 9 in., turrets 9 in. *Complement:* 1,061-85.
(*Queen Mary* was slightly larger: beam 89 ft., displacement about 30,500 tons.

Name	Completed	Builder	Engines	
Lion	6/1912	D.Dy.	V.	8th of name (1st 1511).
Princess Royal	11/1912	V.	V.	6th of name (1st 1711).
Queen Mary	9/1913	Pal.	C.	1st of name.

Lion: 1914, 1st B.C.S., Heligoland Bight. 1915, Flagship B.C. Force, Dogger Bank. 1916, Jutland. 1919, 1st B.C.S. flagship. Sale and scrapped 1922-24.
Princess Royal: 1914, 1st B.C.S., Heligoland Bight. 1915, Dogger Bank. 1916, Jutland. Sale and scrapped 1923-26.
Queen Mary: 1914, 1st B.C.S., Heligoland Bight. 1916, Sunk at Jutland.

The fourth ship of the group, H.M.S. *Tiger*, was projected as a sister ship, but the design was modified on the lines of the British-built Japanese battle cruiser *Kongo*. A magnificent ship she was the heaviest in the fleet when delivered and the first to develop over 100,000 h.p. In spite of being hit 21 times at Jutland she was repaired in a month.

H.M.S. TIGER.

Length: 704 ft. *Beam:* 90½ ft. *Displacement:* 35,000 tons.
Turbines: 4 screws. 85,000-108,000 h.p. 28-30 knots.
Guns: 8—13.5 in. 12—6 in. 2—3 in. A.A. *Torpedo tubes:* 4—21 in.
Armour: Belt 9 in., turrets 9 in. *Complement:* 1,185.

Name	Completed	Builder	Engines	
Tiger	10/1914	C.	C.	11th of name (1st 1546).

1914, 1st B.C.S. 1915, Dogger Bank. 1916, Jutland. 1919, Atlantic, etc. Sale and scrapped 1931-32.

The next two ships were planned to provide battle cruisers with 15 in. guns. The secondary 4 in. guns were arranged in a new design of triple mountings. Fore funnels were heightened shortly after going into service, a few months after Jutland.

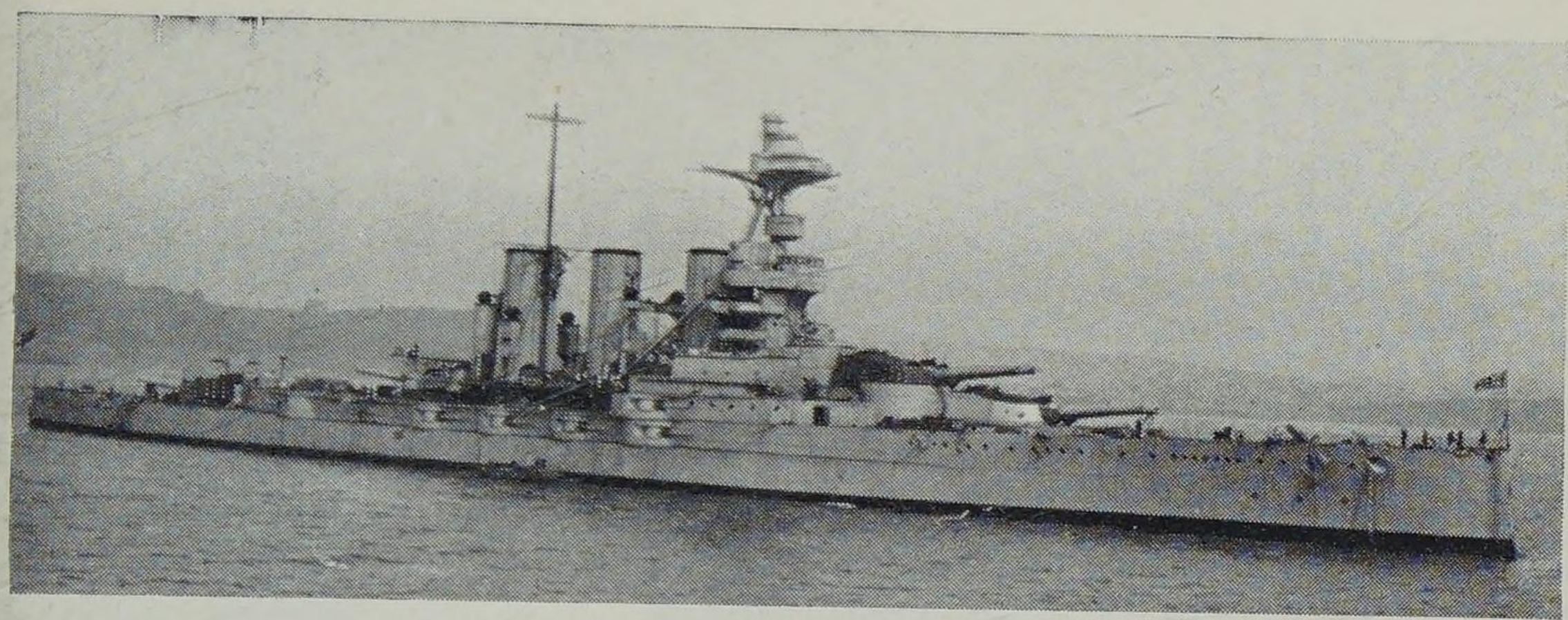
RENOWN CLASS.

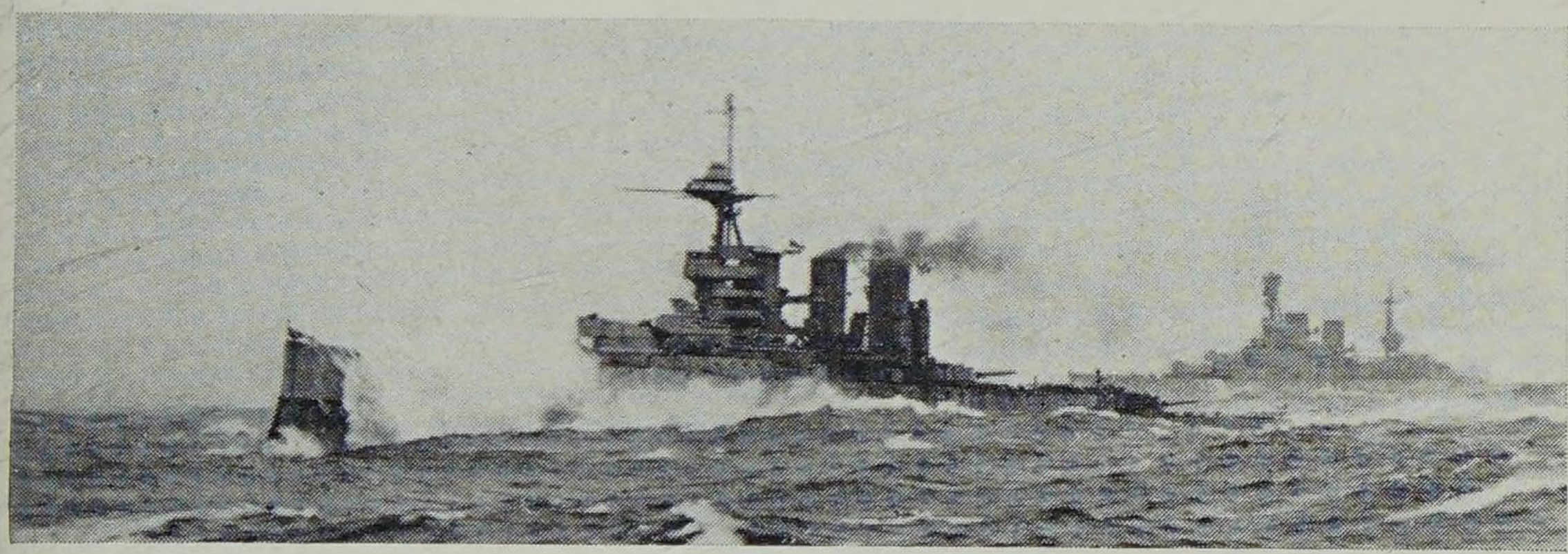
Length: 794 ft. *Beam:* 90 ft. *Displacement:* 32,700 tons.
Turbines: 4 screws. 120,000 h.p. 31-33 knots.
Guns: 6—15 in. 17—4 in. 2—3 in. A.A. *Torpedo tubes:* 2—21 in.
Armour: Belt 6 in., turrets 11 in. *Complement:* 1,000-1,250

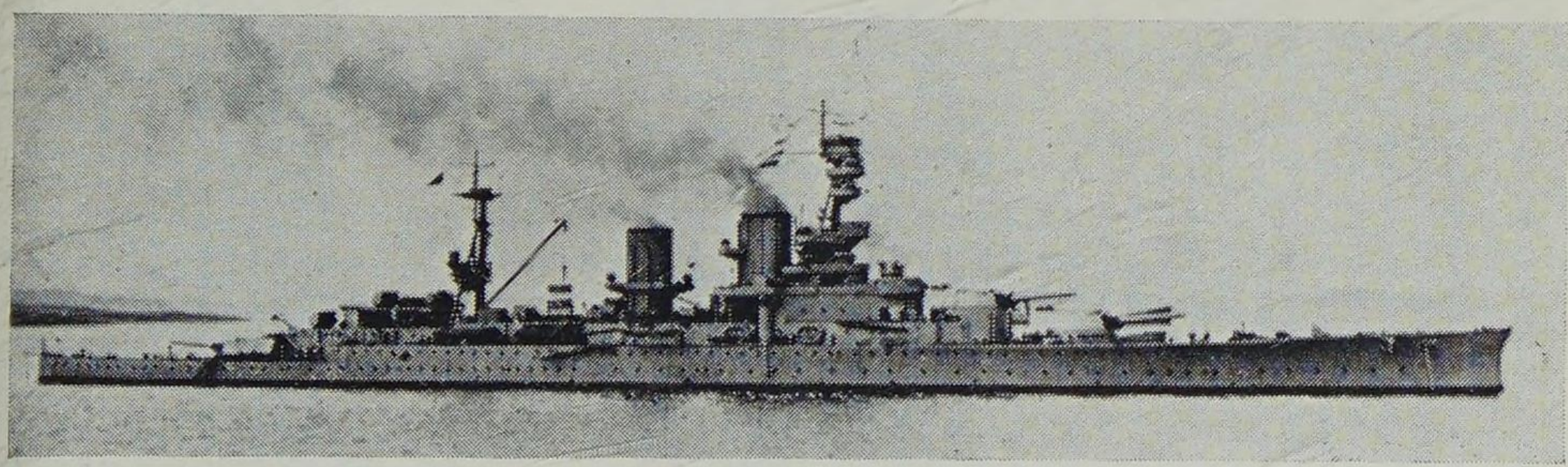
Name	Completed	Builder	Engines	
Repulse	8/1916	C.	C.	12th of name (1st 1595).
Renown	9/1916	F.	F.	10th of name (1st 1651).

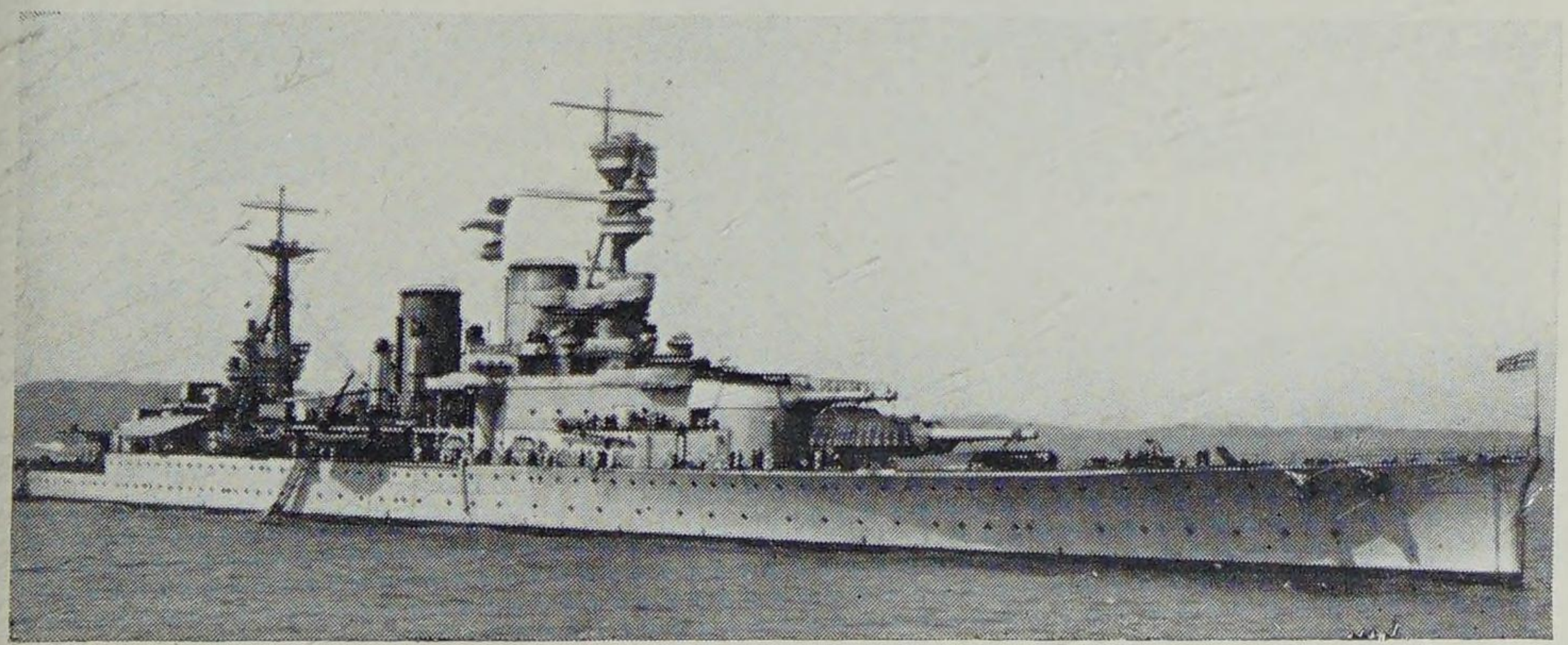
Repulse: 1916, 1st B.C.S. 1918, Painted black and grey in subdued dazzle style, 1919, Atlantic, etc. (Subsequently served in World War II.) 1941, Sunk by Japanese dive- and torpedo-bombers off E. Malayan Coast.
Renown: 1916, 1st B.C.S. 1920, H.R.H. the Prince of Wales' World tour. (Subsequently reconstructed 1936-39, served throughout World War II and sold 1948.)

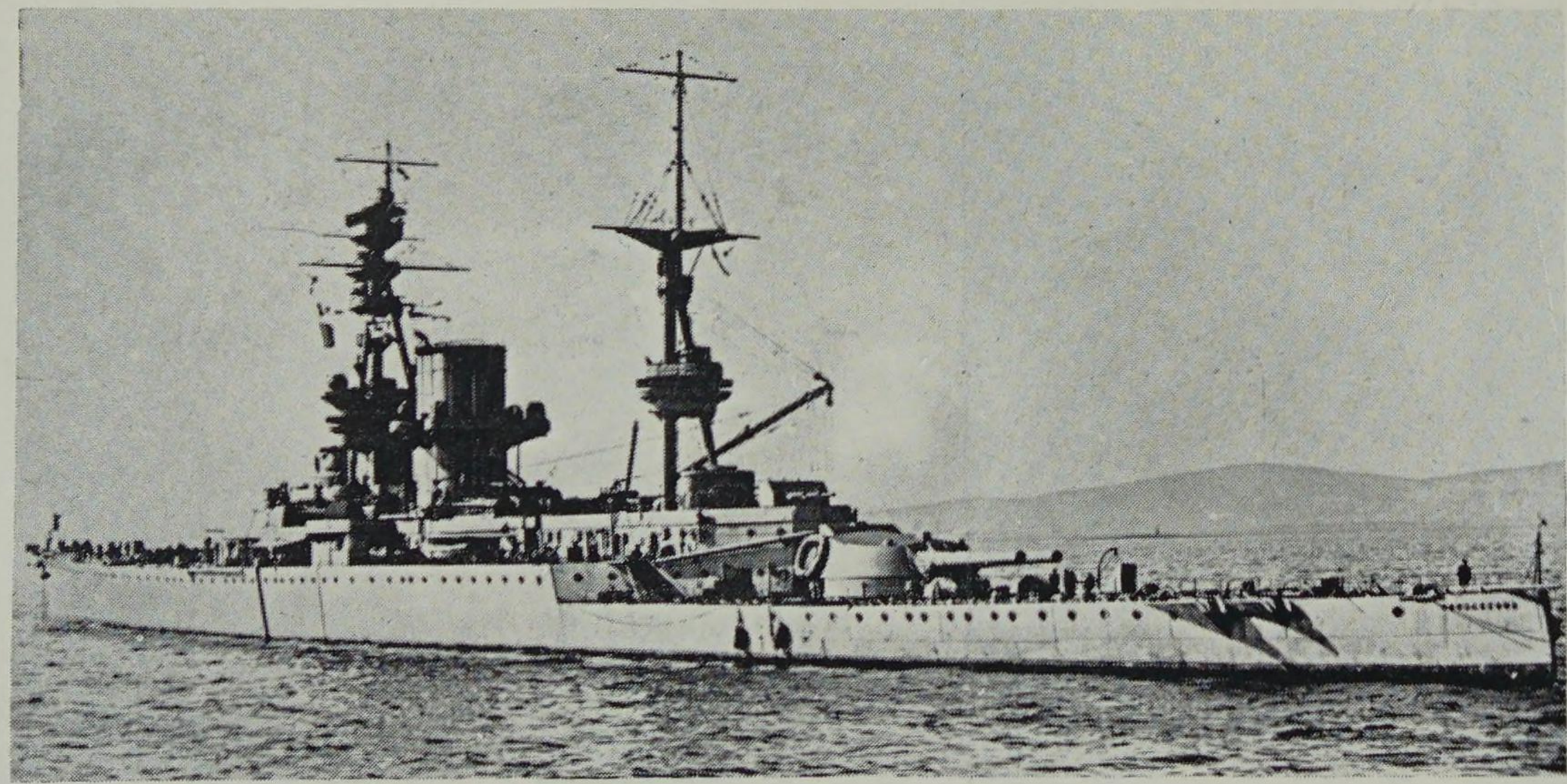
Facing page: Top to bottom: H.M.S. *Tiger.* [*H.S. & R.*
H.M. Ships *Tiger* and *Renown* in heavy weather. [*N.P.C.*
H.M.S. *Repulse* in 1916. [*N.P C.*
H.M.S. *Renown.* [*H.S. & R.*



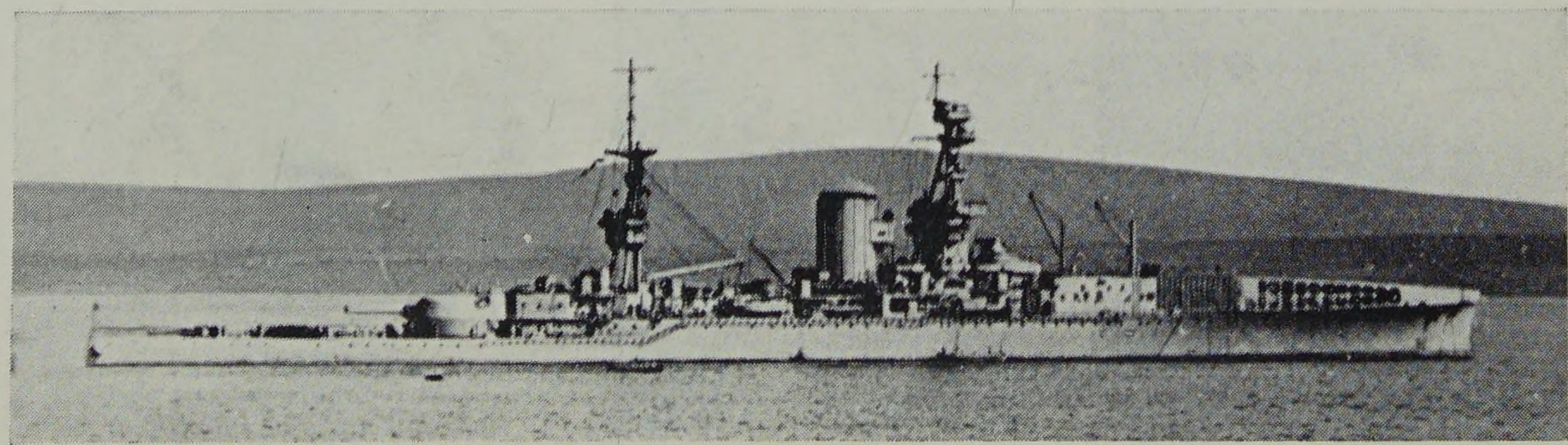








H.M.S. *Courageous*, Glorious class cruiser, completed in 1916. After the war, *Courageous* and her sister ship *Glorious* were completely reconstructed as aircraft carriers.



H.M.S. *Furious*, completed as a partial aircraft carrier was transformed into a complete carrier in 1918, and later served in World War 2. Note the 18 in. gun on the afterdeck.

Light Battle Cruisers

Some account of these ships should be included although they were never used for the purpose for which they were built. Since about 1907 plans had been prepared for the capture of Borkum or one of the other Frisian Islands as a base for penetration of the Baltic. With the early Russian advance into East Germany in 1914 such a scheme, if successful, would have led to a link up with the Russians.

Special ships for the operation included Light Battle Cruisers with a draught of 25-26 ft.* against the 30-34 ft. of our normal battle cruisers. The first two ships were armed with four 15 in. guns and no less than fourteen 21 in. torpedo tubes, twelve being in triple mountings on deck.

* Could be reduced to 22 ft.

GLORIOUS CLASS.

Length: 786 ft. *Beam:* 81 ft. *Displacement:* 22,700 tons.
Turbines (geared): 4 screws. 90,000 h.p. 31-33 knots.
Guns: 4—15 in. 18—4 in. 2—3 in. A.A. *Torpedo tubes:* 14—21 in.
Armour: belt 3 in., turrets 9 in. *Complement:* 829-842.

Name	*Completed*	*Builder*	*Engines*	
Glorious	11/1916	H.&W.	H.&W.	1st of name.
Courageous	12/1916	AW.	Par.	3rd of name (1st 1761).

After the war these ships were laid up and later completely reconstructed as aircraft carriers in 1924-30.

The third ship was slightly larger and designed with two 18 in. guns, the largest ever mounted in the Navy. She was however completed with the forward part as an aircraft carrier and only the after 18 in. gun was mounted.

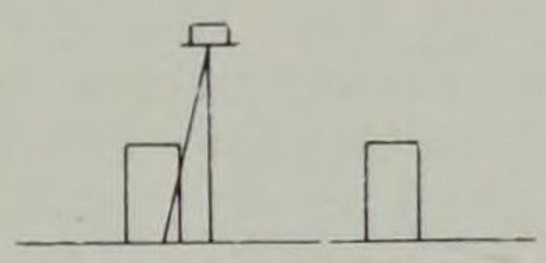
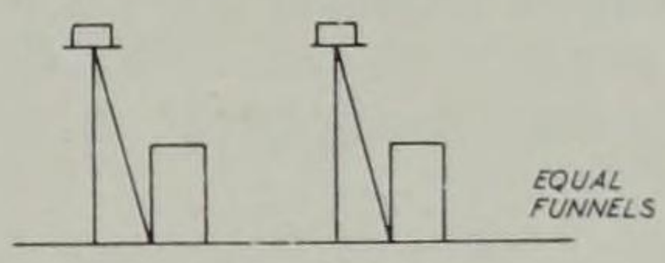
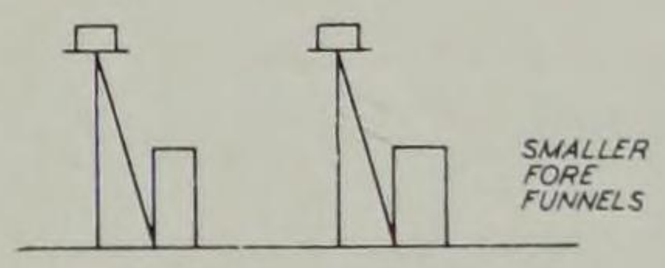
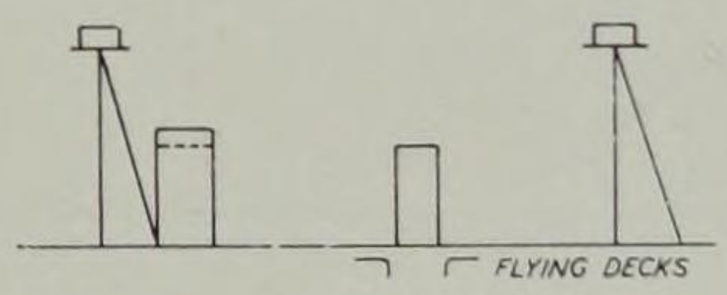
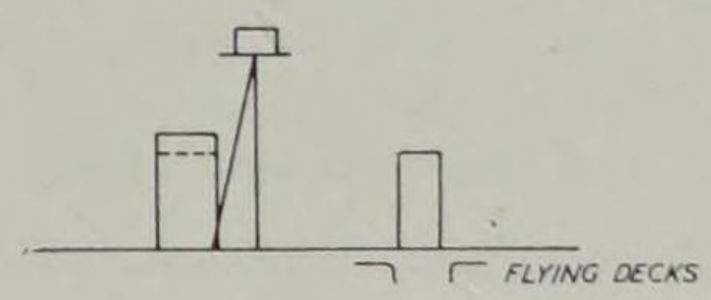
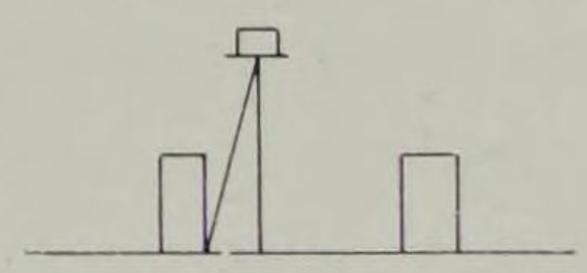
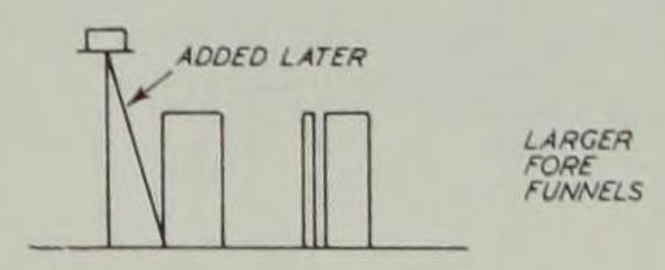
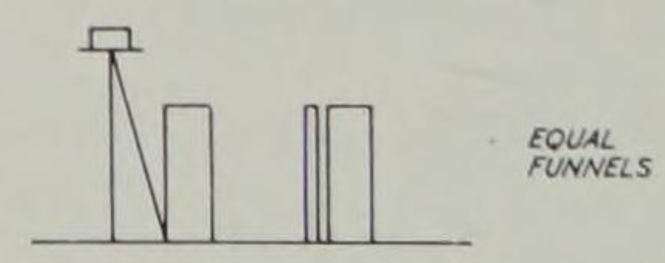
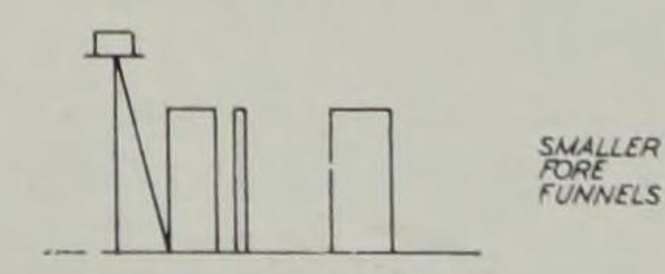
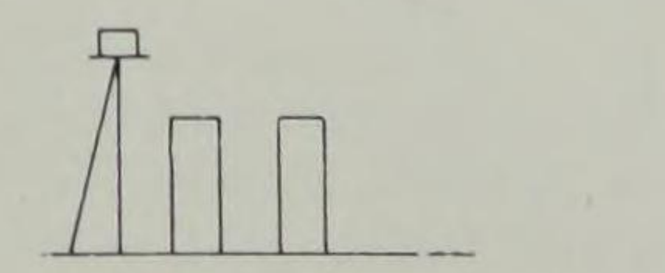
H.M.S. FURIOUS (as designed)

Generally similar to Glorious but 22,900 tons, 94,000 h.p. and armed:—
Guns: 2—18 in. 10—5.5 in. 4—3 in. A.A. *Torpedo tubes:* 18—21 in.

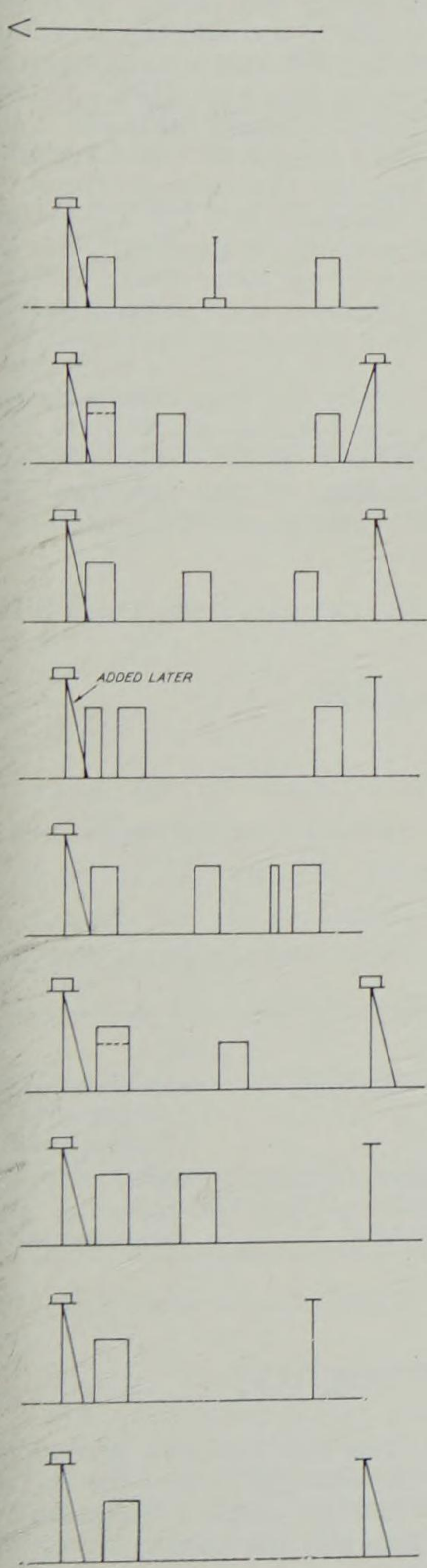
Name	*Completed*	*Builder*	*Engines*	
Furious	7/1917	AW.	Wal.	5th of name (1st 1794).

The after 18 in. gun proved a shattering weapon on a lightly built ship and was removed, the ship being transformed into a complete aircraft carrier in 1918 when she was also dazzle painted. She lived on to serve with distinction in World War II. The 18 in. guns were transferred to monitors and finally to the Singapore Naval Base.

RECOGNITION FEATURES

	Name	1910-1914 *Funnel bands*
	DREADNOUGHT	*None*
	BELLEROPHON TEMERAIRE SUPERB	*None* *2 white on each* *2 white on 1st*
	ST. VINCENT COLLINGWOOD VANGUARD	*2 white on 2nd* *1 white on 2nd* *1 red on each*
	NEPTUNE	*1 white on each*
	COLOSSUS HERCULES	*None* *1 white on 2nd*
	ORION MONARCH THUNDERER CONQUEROR	*2 white on each* *2 white on 1st* *3 white on each* *2 white on 2nd*
	KING GEORGE V CENTURION AJAX AUDACIOUS	*1 white on each* *1 white on 1st* *None* *1 white on 2nd*
	IRON DUKE MARLBOROUGH BENBOW EMPEROR OF INDIA	
	CANADA	
	ERIN	

OF BRITISH BATTLESHIPS



(not to scale)

Name	1910-1914 *Funnel bands*
AGINCOURT	*None*
INVINCIBLE	*1 white on each*
INDOMITABLE	*1 white on 3rd*
INFLEXIBLE	*1 white on 1st*
INDEFATIGABLE	*None*
NEW ZEALAND	*2 white on 3rd*
AUSTRALIA	*None*
LION	*None*
PRINCESS ROYAL	*1 white on 3rd*
QUEEN MARY	*1 white on 1st*
TIGER	
REPULSE	
RENOWN	
QUEEN ELIZABETH	
WARSPITE	
BARHAM	
VALIANT	
MALAYA	
REVENGE	
ROYAL SOVEREIGN	
ROYAL OAK	
RESOLUTION	
RAMILLIES	
GLORIOUS	
COURAGEOUS	

The German High Seas Fleet

THE rise of Germany as a maritime and naval power was rapid. Between 1890 and 1910 she rose from a minor Sea Power to second place, holding the Blue Riband of the Atlantic from 1898 to 1907 with a succession of record-breaking liners. Before the 1914-1918 War the *Imperator* (1913, 52,000 tons) and *Vaterland* (1914, 54,000 tons) were the world's largest ships and their owners, the Hamburg America Line, had the world's largest fleet of merchant ships. With the opening of the Dreadnought era, the challenge to Britain's maritime supremacy was plain. With warships Germany had the advantage of designing ships primarily to fight near their bases either in the North Sea or Baltic, whereas ours had to be suitable for service in all parts of the World. Not only was full advantage taken of this but the Germans seem to have shown a more accurate appreciation of battle conditions in a number of ways.

Their system of subdivision and damage control by flooding and pumping made their ships very difficult to sink. Cordite was handled in canisters and cartridge cases instead of bags, which reduced the risk of fire. The accurate ranging of their opening salvos was often remarkable. Night signalling and searchlight control were excellent. Ships were at all times painted in the war-time light grey.

In the following notes abbreviations used for the German yards which built Dreadnought battleships and battle cruisers are:—

Wn.Dy.	WILHELMSHAVEN DOCKYARD.
K.Dy.	KIEL DOCKYARD.
Ger.	KRUPP'S GERMANIA YARD (KIEL).
How.	HOWALDT (KIEL).
Wes.	WESER (BREMEN).
B. & V.	BLOHM & VOSS (HAMBURG).
Vul (H)	VULCAN (HAMBURG).
Vul (S)	VULCAN (STETTIN).
Sch.	SCHICHAU (DANZIG).

English spelling has been used for the *Koenig* (König), *Goeben* (Göben) and *Bluecher* (Blücher).

Against our fifty serviceable pre-Dreadnoughts Germany had twenty, of which six (*Deutschland*, *Pommern*, *Schlesien*, *Schleswig Holstein*, *Hannover* and *Hessen*) formed the 2nd B.S. at Jutland, where S.M.S. *Pommern* was sunk.

German Battleships (Dreadnoughts)

The early German Dreadnoughts resembled ours but had two turrets on either side, thus with six turrets only four could be brought to bear for broadsides. The four " Westfalens " had 11 in. guns and the larger " Helgolands " which followed, 12 in. All were on the same plan and the persistence of the wing turret arrangement is difficult to account for.

WESTFALEN CLASS.

Length: 478 ft. *Beam:* 89 ft. *Displacement:* 18,900 tons.
Triple expansion: 3 screws. 20,000-28,000 h.p. 20 knots.
Guns: 12—11 in. 12—5.9 in. (16—3.4 in.*) *Torpedo tubes:* 6—17.7 in.
Armour: belt 11½ in., turrets 11½ in. *Complement:* 1,008-1,087.
*Later removed and 2—3.4 in. A.A. added.

Name	Completed	Builder	
Westfalen	10/1909	Wes.	1924 Scrapped at Birkenhead
Nassau	10/1909	Wn.Dy.	1921 Scrapped on the Tees
Posen	3/1910	Ger.	1922 Scrapped in Holland
Rheinland	3/1910	Vul.(S)	1921 ,, ,, ,,

1916, all four ships at Jutland. 1919, Disarmed and later scrapped. The " Westfalens " and " Helgolands " formed the German 1st B.S.

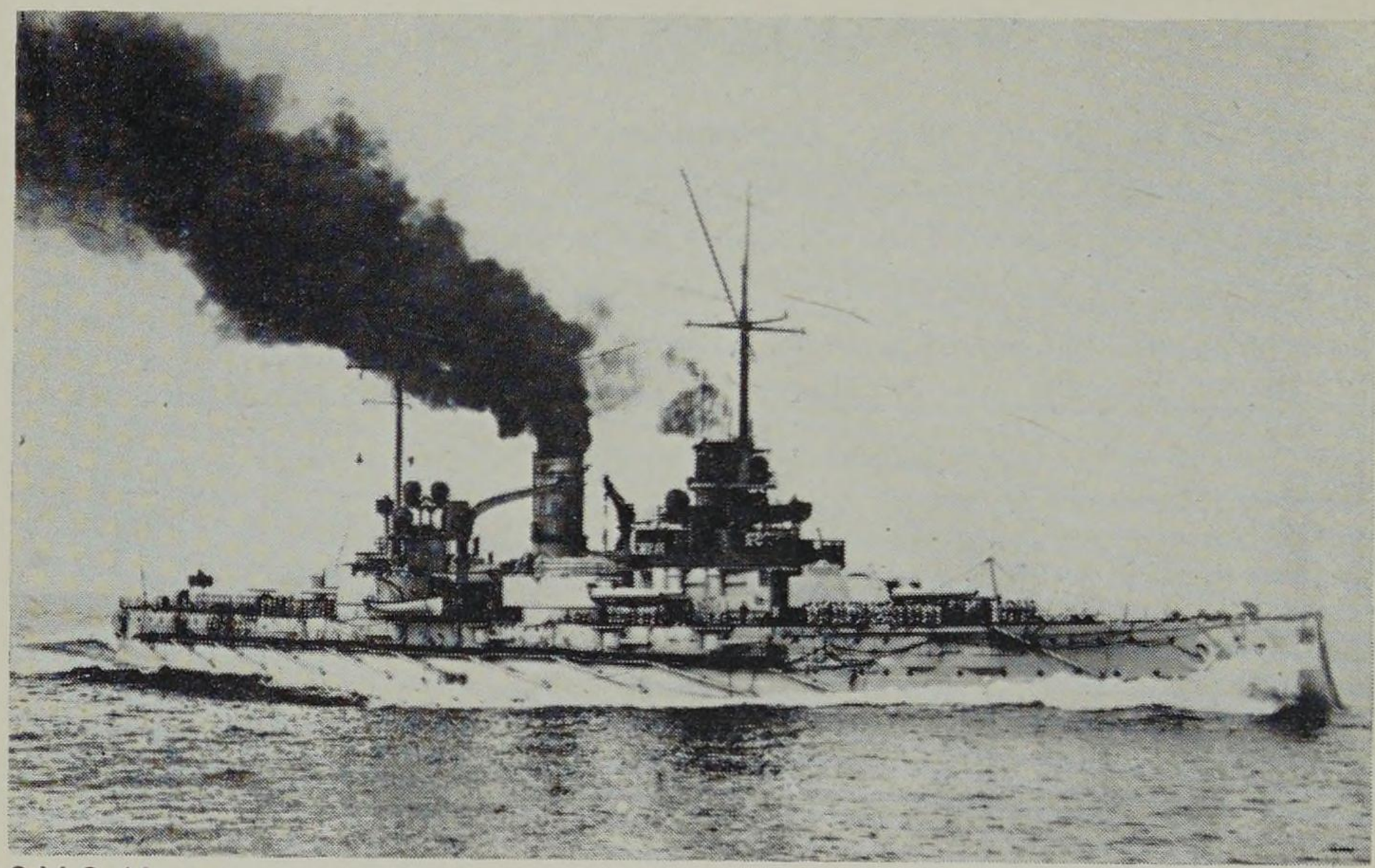
HELGOLAND CLASS.

Length: 546 ft. *Beam:* 93½ ft. *Displacement:* 22,800 tons.
Triple expansion: 3 screws. 28,000-35,000 h.p. 21 knots.
Guns: 12—12 in. 14—5.9 in. 14—3.4 in.* *Torpedo tubes:* 6—19.7 in.
Armour: belt 11¾ in., turrets 12 in., *Complement:* 1,113-1,192.
*Later removed and 2—3.4 in. A.A. added.

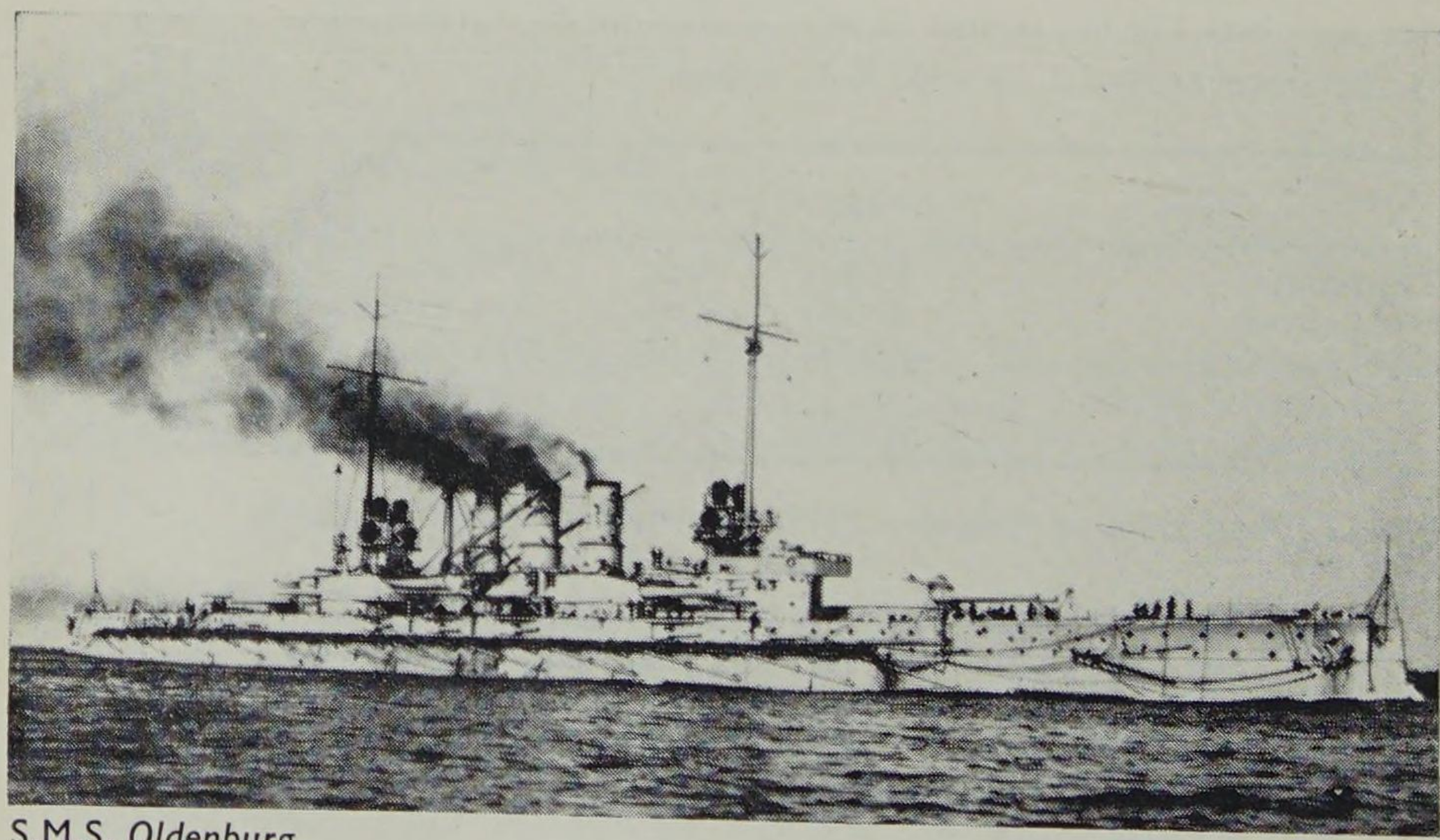
Name	Completed	Builder	
Thuringen	6/1911	Wes.	to France. Scrapped 1923
Helgoland	8/1911	How.	1924 Scrapped at Morcambe
Ostfriesland	8/1911	Wn.Dy.	1921 Sunk in bombing tests, U.S.A.
Oldenburg	8/1912	Sch.	1921 Scrapped in Holland

1916, All four ships at Jutland. 1919, Disarmed and later scrapped.

The succeeding Kaiser class had a turret arrangement similar to H.M.S. *Neptune*, but by splitting the upperworks and uptakes into two widely spaced " islands ", the rather impracticable flying deck was dispensed with. Five ships were built in order to provide a fleet flagship in S.M.S. *Friedrich aer Grosse*. In the later " Koenig " class the turret arrangement was similar to our 13.5 in. gun ships.



S.M.S. *Nassau.* [I.W.M.



S.M.S. *Oldenburg.* [I.W.M.

KAISER CLASS.

Length: 564 ft. *Beam:* 95¼ ft. *Displacement:* 24,380 tons.
Turbines: 3 screws. 30,000-35,000 h.p. 21-23 knots.
Guns: 10—12 in. 14—5.9 in. 8—3.4 in. 4—3.4 in. A.A.
Torpedo tubes: 5—19.7 in.
Armour: belt 13¾ in., turrets 11¾ in. *Complement:* 1,088-1178.

Name	Completed	Builder	
Kaiser	10/1912	K.Dy.	1929-30 Raised and Scrapped
Friedrich der Grosse	10/1912	Vul(H).	1936-7 ,, ,, ,,
Kaiserin	8/1913	How.	1936 ,, ,, ,,
Prinz Regent Luitpold	8/1913	Sch.	1931-3 ,, ,, ,,
Koenig Albert	8/1913	Ger.	1935-6 ,, ,, ,,

1914, *Friedrich der Grosse* flagship C. in C.; others formed 3rd B.S. 1916, All except *Koenig Albert* at Jutland. 1918, All five surrendered and were interned at Scapa. 1919, scuttled. In later years a number of scuttled ships of various classes were refloated keel upwards and scrapped in Britain.

KOENIG CLASS.

Length: 580 ft. *Beam:* 97 ft. *Displacement:* 25,390 tons.
Turbines: 3 screws. 31,000-35,000 h.p. 21-23 knots.
Guns: 10—12 in. 14—5.9 in. 6—3.4 in. 4—3.4 in. A.A.
Torpedo tubes: 5—19.7 in.
Armour: belt 13¾ in., turrets 13¾ in. *Complement:* 1,136-1,218.

Name	Completed	Builder	
Koenig	10/1914	Wn.Dy.	1919 Scuttled
Markgraf	10/1914	Wes.	,, ,,
Grosser Kurfurst	7/1914	Vul(H).	,, ,,
Kronprinz Wilhelm	11/1914	Ger.	,, ,,

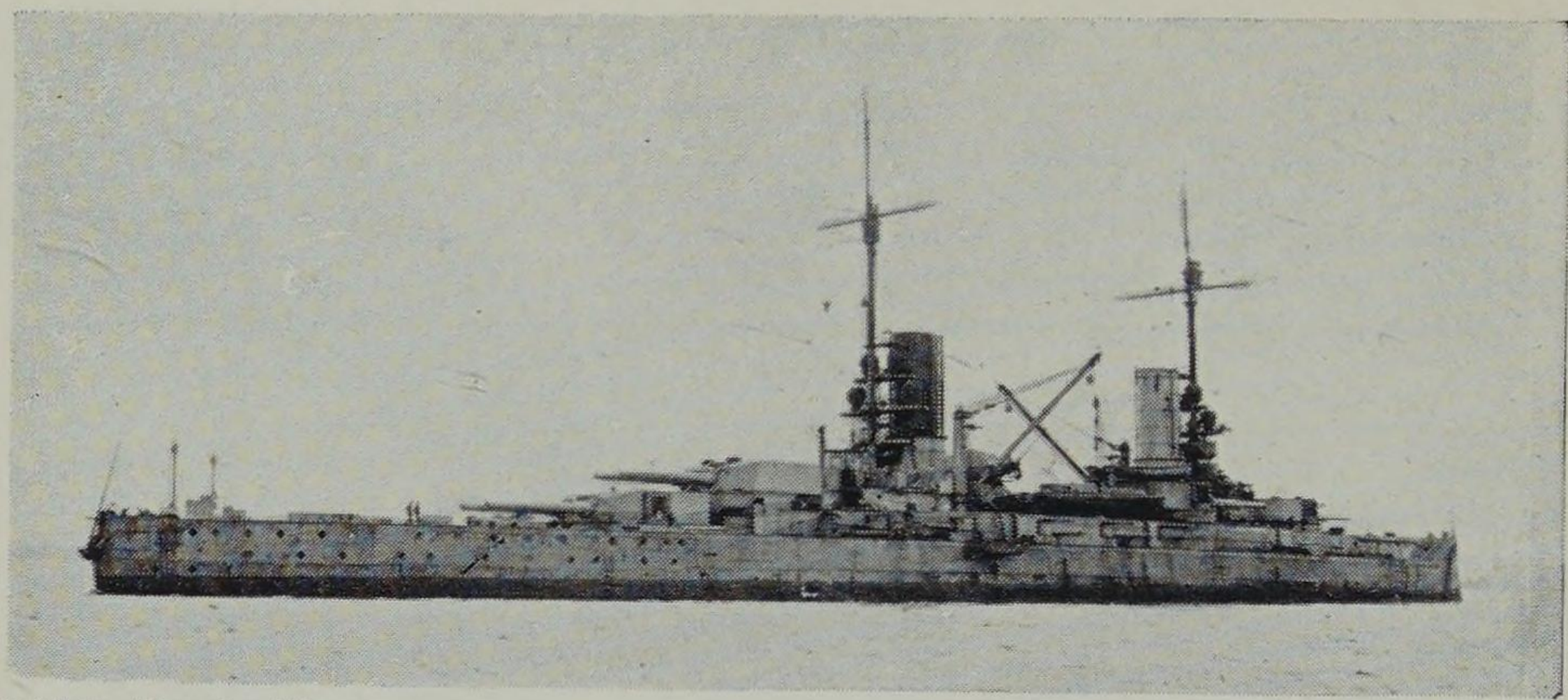
1914-15, Joined the " Kaisers " in the 3rd B.S. 1916, All at Jutland. 1918, All surrendered and were interned at Scapa. 1919, All scuttled, and not raised.

The last German battleships built in this era were their reply to our " Queen Elizabeths ". None were ready for service until after Jutland.

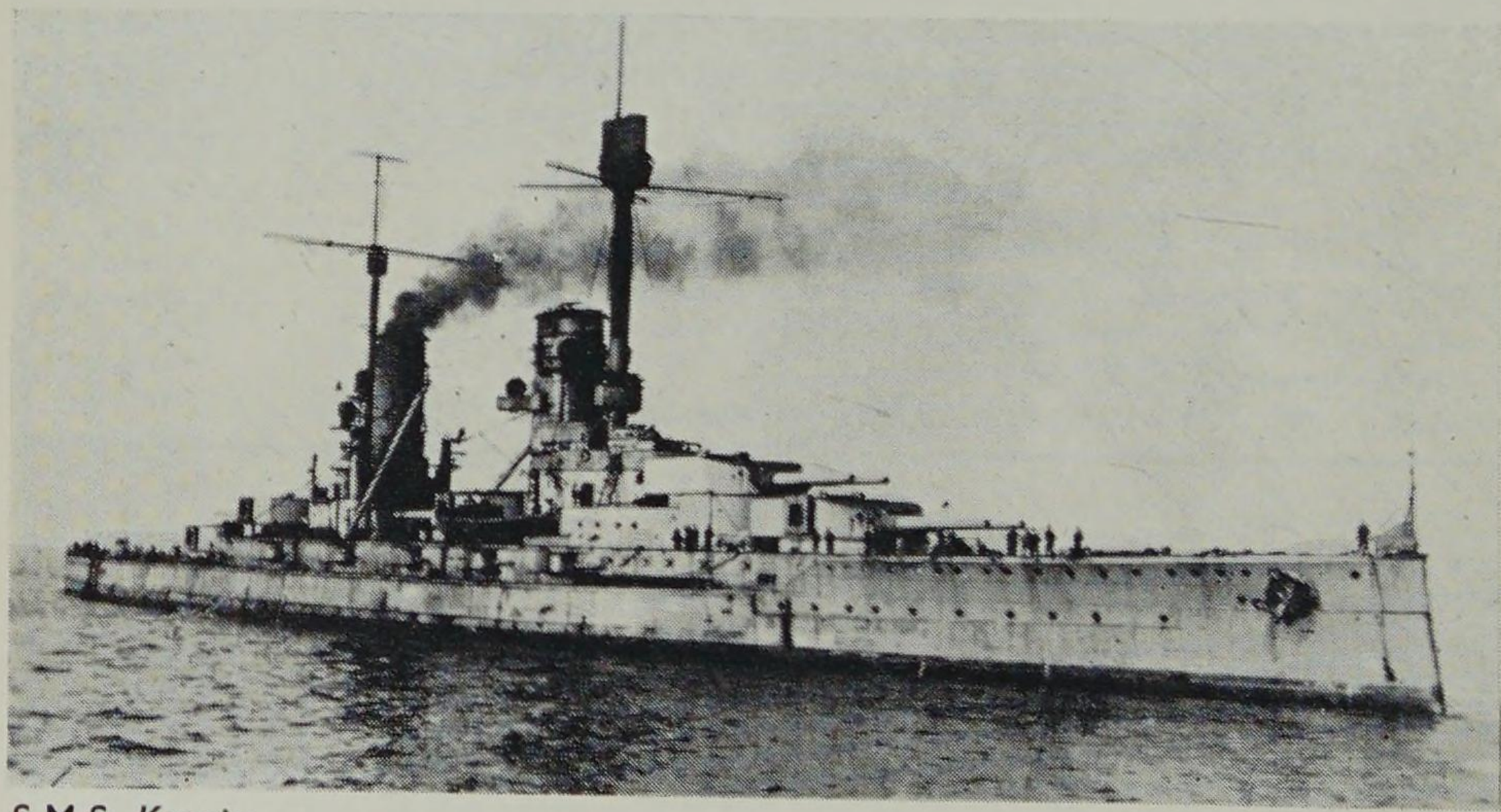
BADEN CLASS.

Length: 623⅓ ft. *Beam:* 99 ft. *Displacement:* 28,075 tons.
Turbines: 4 screws. 52,800 h.p. 22¼ knots.
Guns: 8—15 in. 16—5.9 in. 4—3.4 in. A.A. *Torpedo tubes:* 5—23.6 in.
Armour: belt 13¾ in., turrets 13¾ in. *Complement:* 1171-1,271.

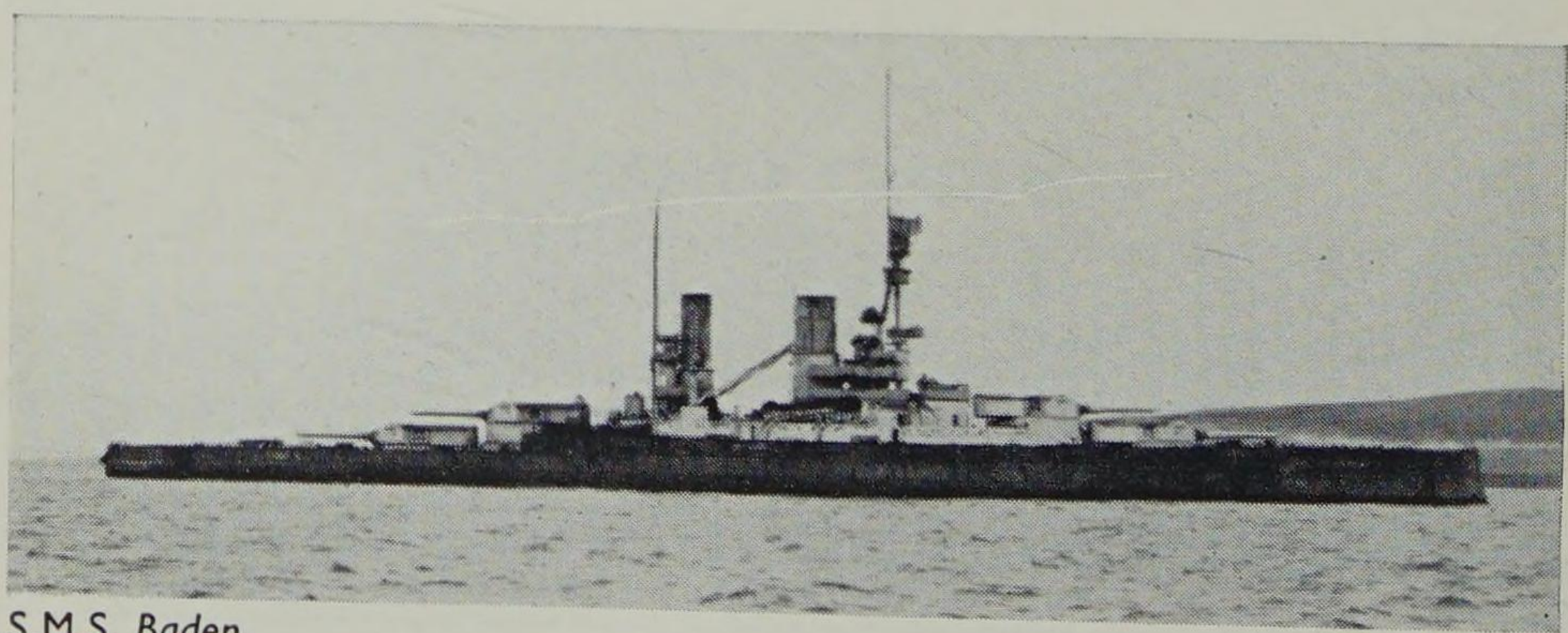
Name	Completed	Builder	
Baden	11/1916	Sch.	1921 Target and Sunk
Bayern	3/1916	How.	1934-5 Raised and Scrapped



S.M.S. *Koenig Albert.* [H.S. & R



S.M.S. *Koenig.* [N.P.C



S.M.S. *Baden.* [H.S. & R.

Sister ships: Work was stopped on *Sachsen* and *Wurttemberg* in 1917.
Bayern: 1918, Surrendered. 1919, Scuttled.
Baden: 1917, Flagship C. in C. 1918, Surrendered. 1919, Scuttled but raised and used as target before being sunk in 1921.

German Battle Cruisers

Mention must be made of the heavy armoured cruiser *Bluecher* which was intended to match our first battle cruisers. Purposely misleading information was allowed to leak out that the "Invincibles" would be similar to the *Dreadnought* but with 9.2 in. guns. The *Bluecher* was therefore built on the same plan as the "Westfalens" with 8.2 in. guns. She took her place with the German battle cruisers but was out-gunned and sunk in the first major action at the Dogger Bank in 1915.

S.M.S. BLUECHER.

Length: 530½ ft. *Beam:* 80½ ft. *Displacement:* 15,500 tons.
Triple expansion: 3 screws. 32,000-44,000 h.p. 24½-26 knots.
Guns: 12—8.2 in. 8—5.9 in. 16—3.4 in. *Torpedo tubes:* 4—17.7 in.
Armour: belt 6¾ in., turrets 6¾ in. *Complement:* 847-929.
She was fitted with tripod foremast in 1914.

Name	Completed	Builder	
Bluecher	9/1909	K.Dy.	1915 Sunk at Dogger Bank

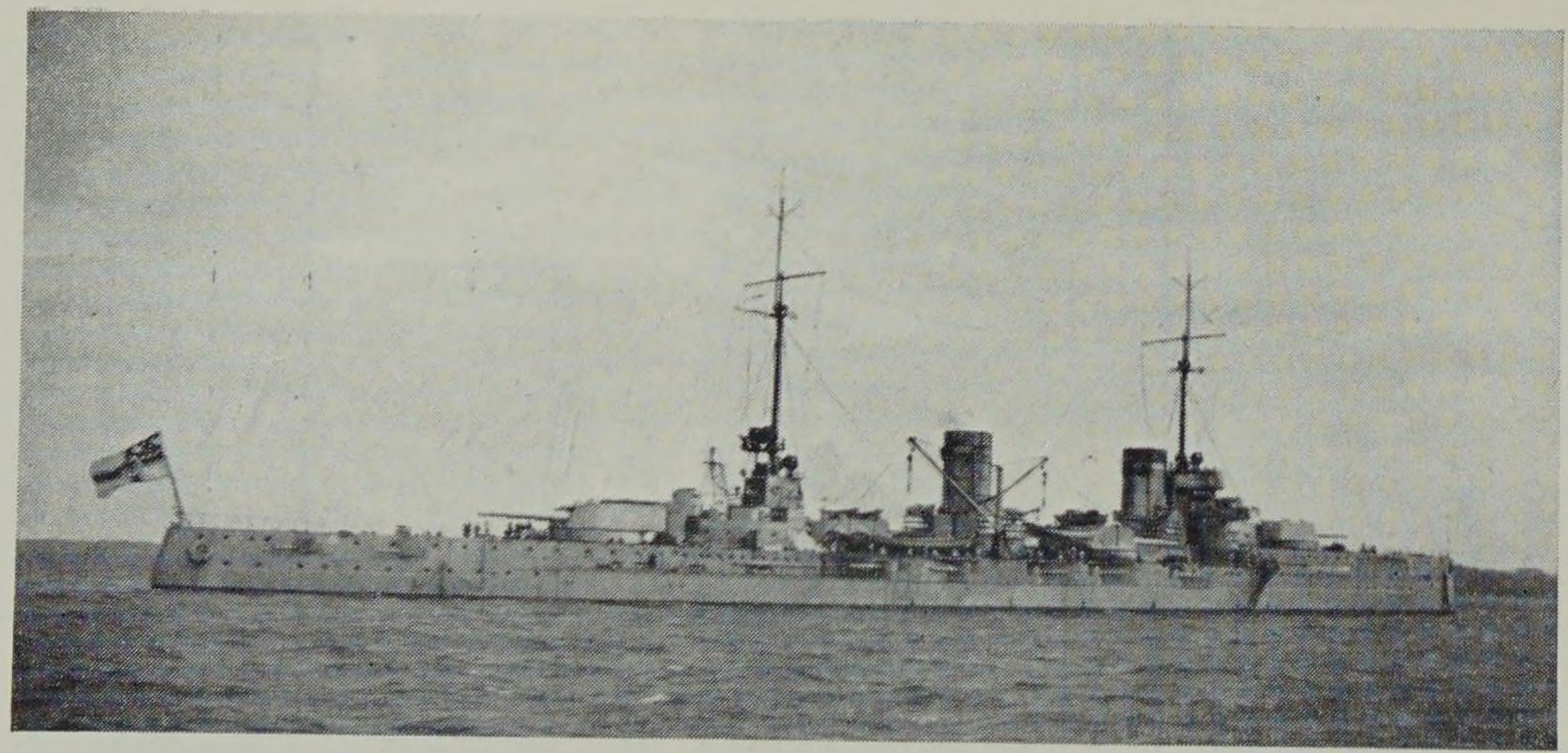
The *Von der Tann*, the first German battle cruiser, was a fine ship which created a great impression at the Coronation Naval Review in 1911. Like most German battle cruisers she was built and engined by Blohm & Voss, Hamburg, and was the first large German warship with turbines and quadruple screws.

S.M.S. VON DER TANN.

Length: 562 ft. *Beam:* 87 ft. *Displacement:* 19,100-21,000 tons.
Turbines: 4 screws. 43,600-79,800 h.p.† 25-28 knots.
Guns: 8—11 in. 10—5.9 in. 16—3.4 in.* *Torpedo tubes:* 4—17.7 in.
Armour: belt 10½ in., turrets 9 in. *Complement:* 923.
*Later removed and 4—3.4 in. A.A. added.
†Highest of various figuers quoted for maximum h.p.

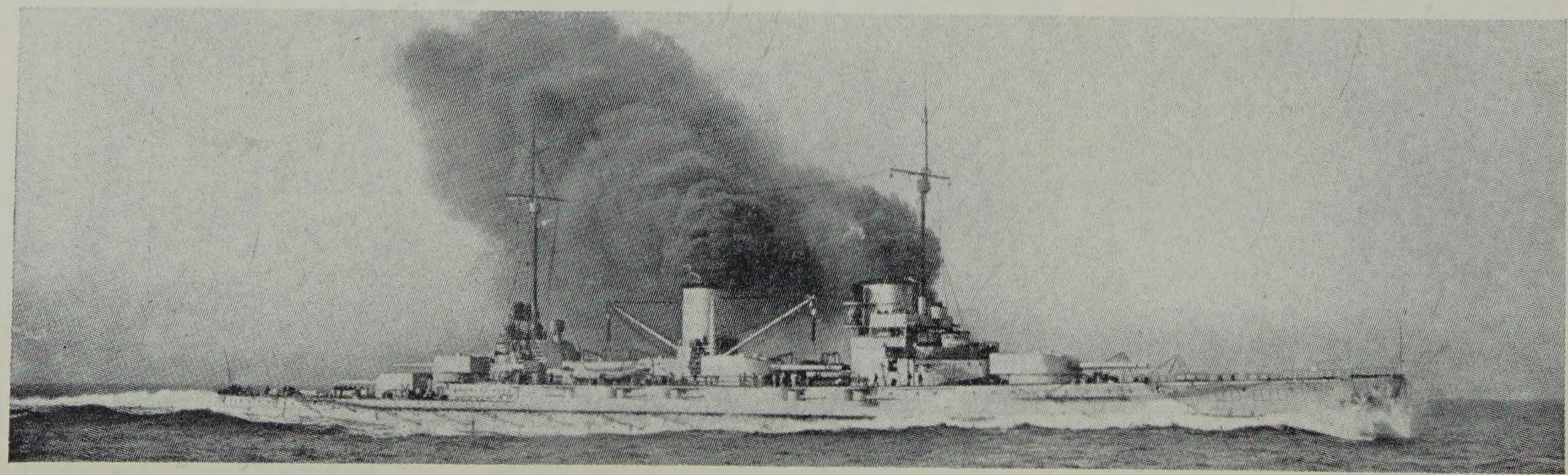
Name	Completed	Builder	
Von der Tann	9/1910	B.&V.	1930-4 Raised and Scrapped

1916, Jutland. 1918, Surrendered. 1919, Scuttled.

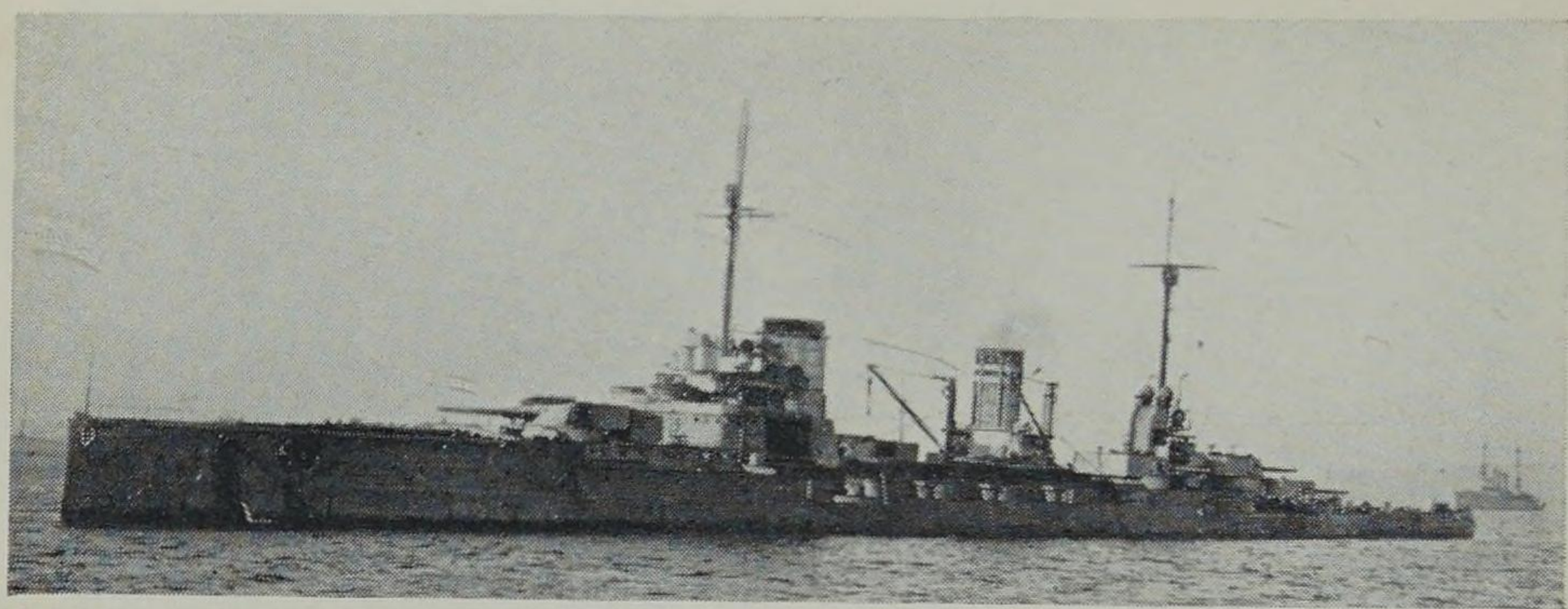


S.M.S. *Von der Tann*, the first of the German battle cruisers, and the first large German warship with turbines and quadruple screws.

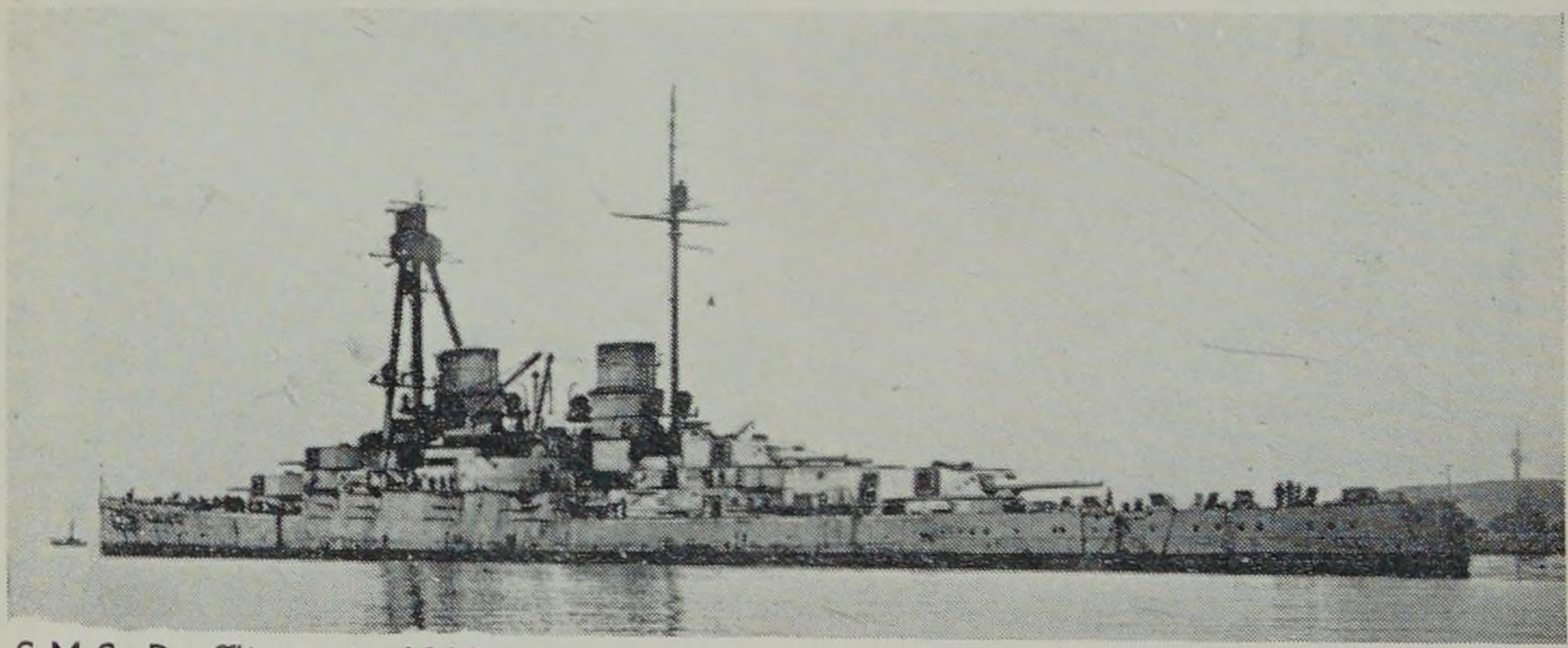
Below: S.M.S. *Moltke*, a battle cruiser with 11 in. guns in the same turret arrangement as the Kaiser class battleships.



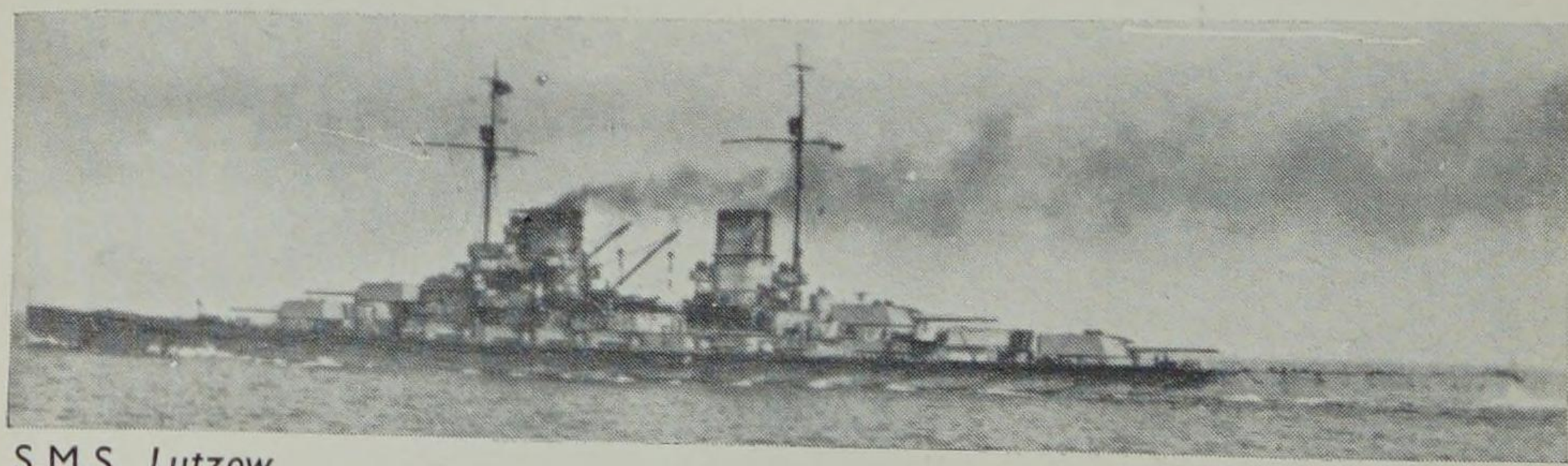
S.M.S. *Seydlitz*, flagship of the German High Seas Scouting Force, after the battle of Jutland. [I.W.M



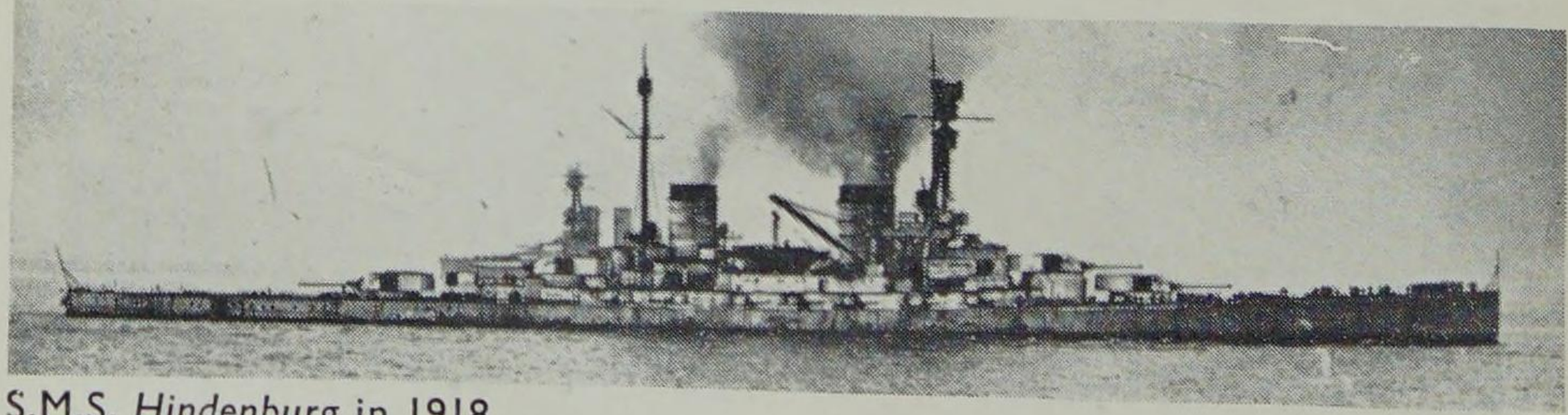
S.M.S. *Seydlitz.* [*H.S. & R.*



S.M.S. *Derfflinger* in 1918. [*I.W.M.*



S.M.S. *Lutzow* [*P. A. Vicary*



S.M.S. *Hindenburg* in 1918. [*N.P.C.*

The next three ships were very successful having the same turret arrangement as the " Kaiser " class battleships but with 11 in. guns in place of 12 in.

MOLTKE CLASS.

Length: 610 ft. *Beam:* 96¾ ft. *Displacement:* 22,640 tons.
Turbines: 4 screws. 70,000-86,000 h.p. 27-29 knots.
Guns: 10—11 in. 12—5.9 in. 12—3.4 in.* *Torpedo tubes:* 4—19.7 in.
Armour: belt 10½ in., turrets 9¼ in. *Complement:* 1,053-1128.
*Later removed and 2 or 4—3.4 in. A.A. added.

Name	Completed	Builder	
Moltke	10/1911	B.&V.	1927-9 Raised and Scrapped
Goeben	4/1912	B.&V.	

Moltke: 1915, Dogger Bank. 1916, Jutland. 1918, Surrendered. 1919, Scuttled
Goeben: 1914, Mediterranean, escaped to join Turkish fleet. Twice mined. As the Turkish *Yavuz* she is the only German ship of this era still (1959) in existence.

S.M.S. SEYDLITZ

Length: 656 ft. *Beam:* 93⅓ ft. *Displacement:* 24,610 tons.
Turbines: 4 screws. 63,000-100,000 h.p. 27-30 knots.
Guns: 10—11 in. 12—5.9 in. 12—3.4 in.* *Torpedo tubes:* 4—19.7 in.
Armour: belt 11¾ in., turrets 9¾ in. *Complement:* 1,068-1143.
Later removed and 2 or 4—3.4 in. A.A. added.

Name	Completed	Builder	
Seydlitz	5/1913	B.&V.	1929-30 Raised and Scrapped

1914, flagship of the High Seas Scouting Force, the equivalent of our Battle Cruiser Force. 1915, Dogger Bank. 1916, Jutland. 1918, surrendered. 1919, scuttled. Like her British opposite number H.M.S. *Lion*, she was badly damaged at Dogger Bank and Jutland. Both ships saw the maximum amount of action and survived tremendous punishment.

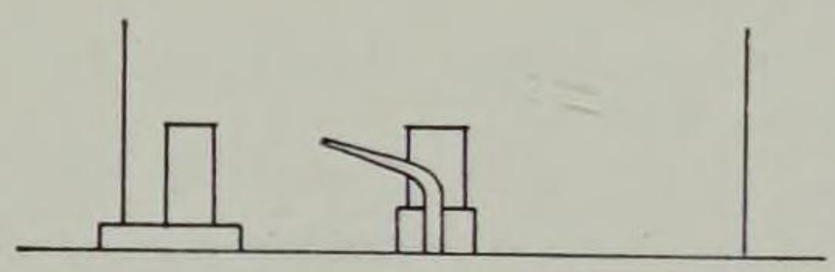
DERFFLINGER CLASS.

Length: 689 ft. *Beam:* 95¼ ft. *Displacement:* 26,180-28,000 tons.
Turbines: 4 screws. 85,000 h.p. 27-28 knots.
Guns: 8—12 in. 12 to 14—5.9 in. 4—3.4 in. A.A. *Torpedo tubes:* 4—19.7 in.
Armour: belt 11¾ in., turrets 10¾ in. *Complement:* 1,112-1214.

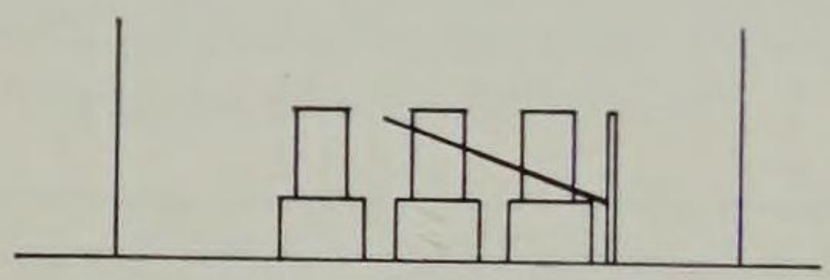
Name	Completed	Builder	
Derfflinger	7/1914	B.&V.	
Lutzow	8/1915	Sch.	1916 Sunk at Jutland
Hindenburg	5/1917	Wn.Dy.	1930-2 Raised and Scrapped

Derfflinger: 1915, Dogger Bank. 1916, Jutland. 1918, surrendered. 1919 scuttled.
Lutzow: 1916, sunk at Jutland.
Hindenburg: 1918, surrendered. 1919, scuttled.

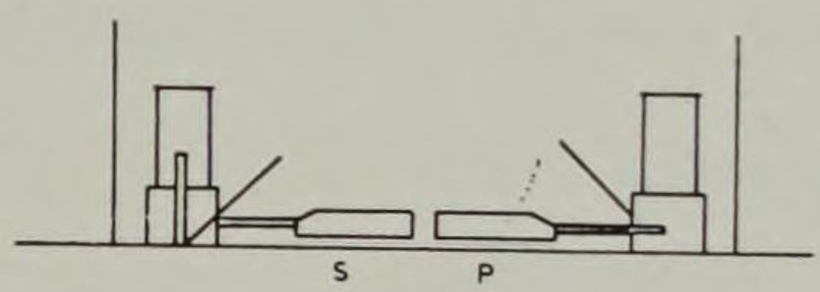
RECOGNITION FEATURES



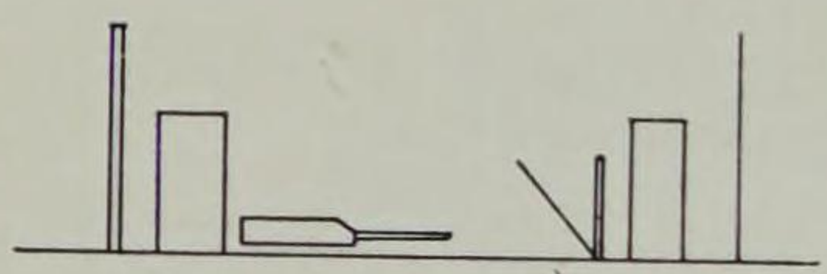
WESTFALEN
NASSAU
POSEN
RHEINLAND



THURINGEN
HELGOLAND
OSTFRIESLAND
OLDENBURG



KAISER*
FRIEDRICH DER GROSSE*
KAISERIN
PRINZ REGENT LUITPOLD
KOENIG ALBERT

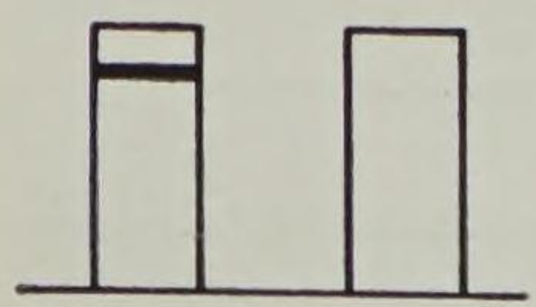


KOENIG
MARKGRAF
GROSSER KURFURST
KRONPRINZ WILHELM

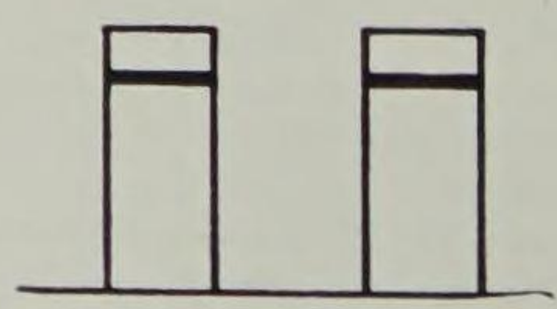
BADEN
BAYERN

**Friedrich der Grosse and Kaiser* later had heavy foremast like the "Koenig" class.

Funnel Bands — 1st Division - White Bands ; 2nd Division -

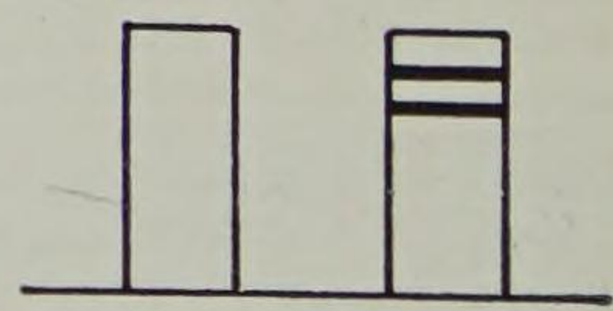


1st Ship



2nd Ship

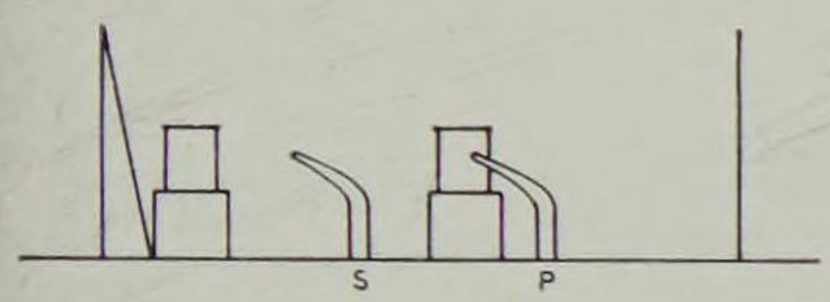
(or)



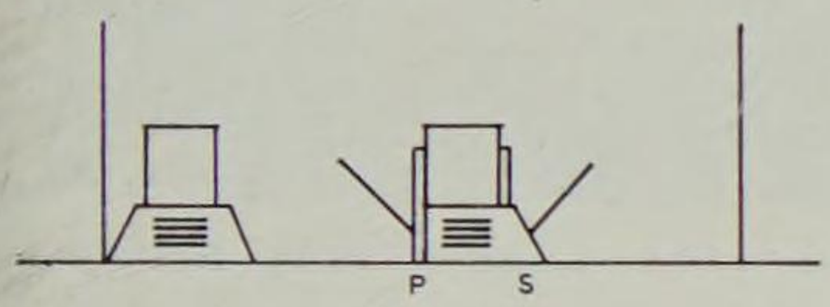
2nd Ship

OF GERMAN BATTLESHIPS

(not to scale)



BLUECHER



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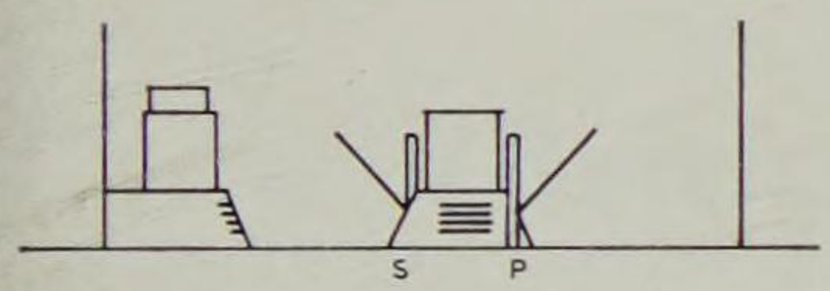
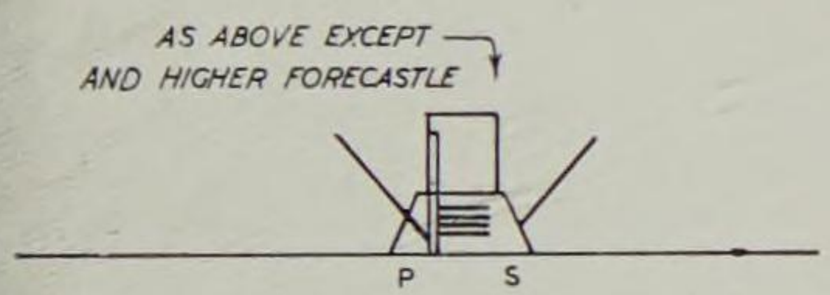
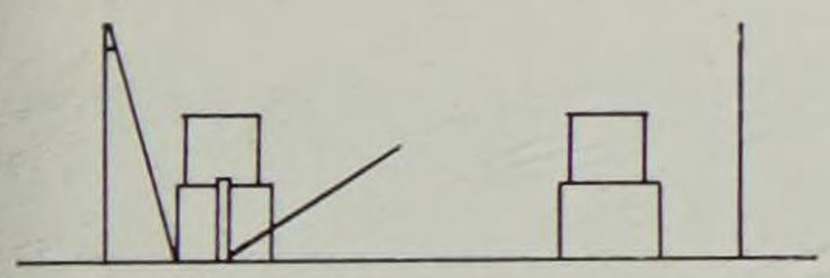


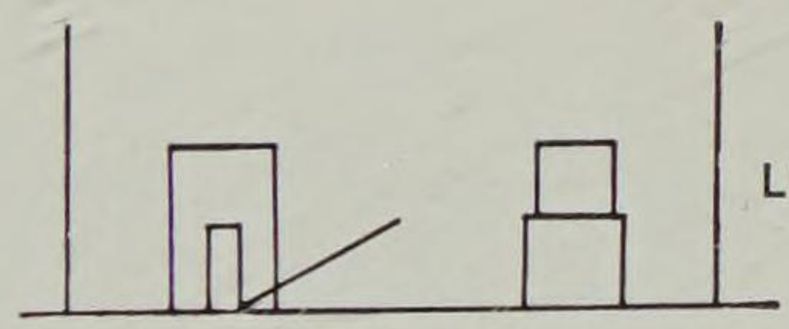
GOEBEN
MOLTKE (Cap on 2nd funnel)



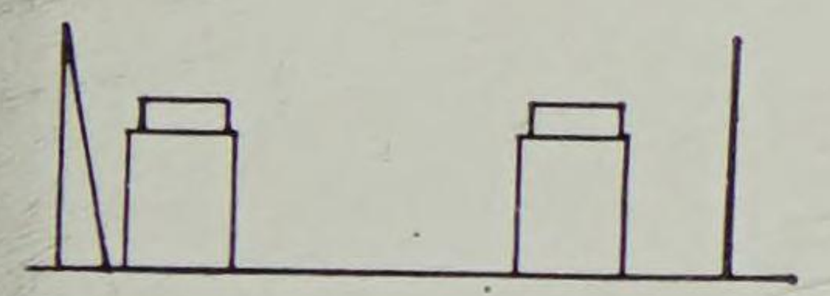
SEYDLITZ



DERFFLINGER



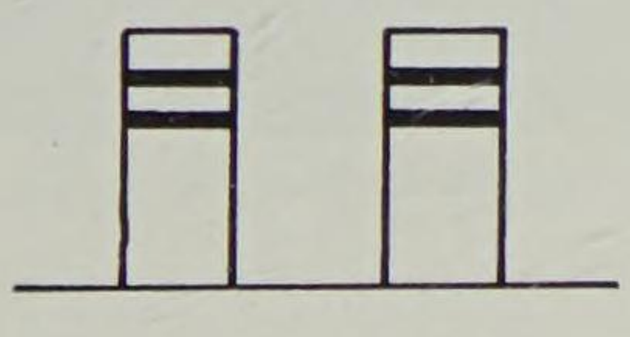
LUTZOW



HINDENBURG

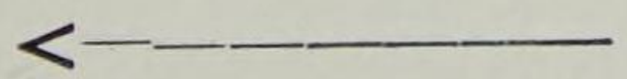
Red Bands; 3rd Division - Yellow Bands; 4th Division - Blue Bands

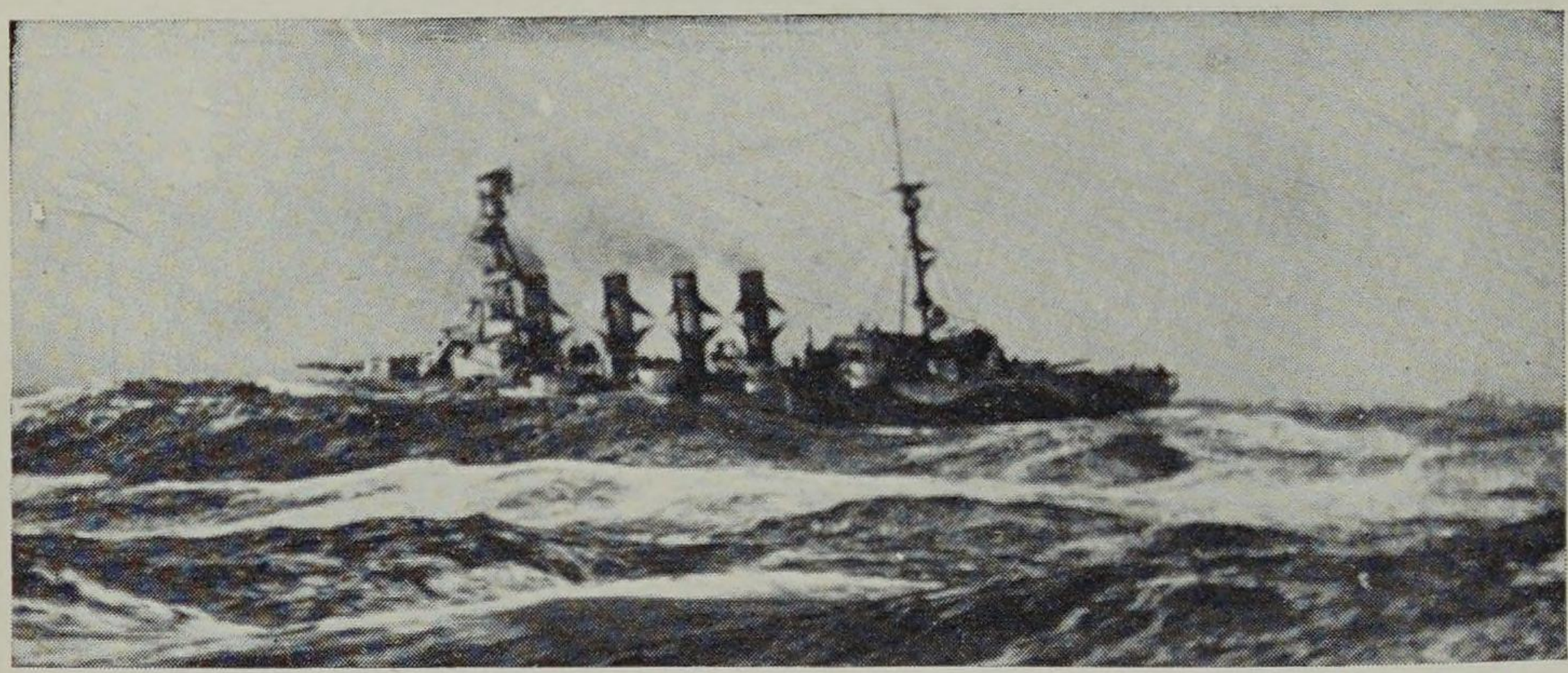
3rd Ship



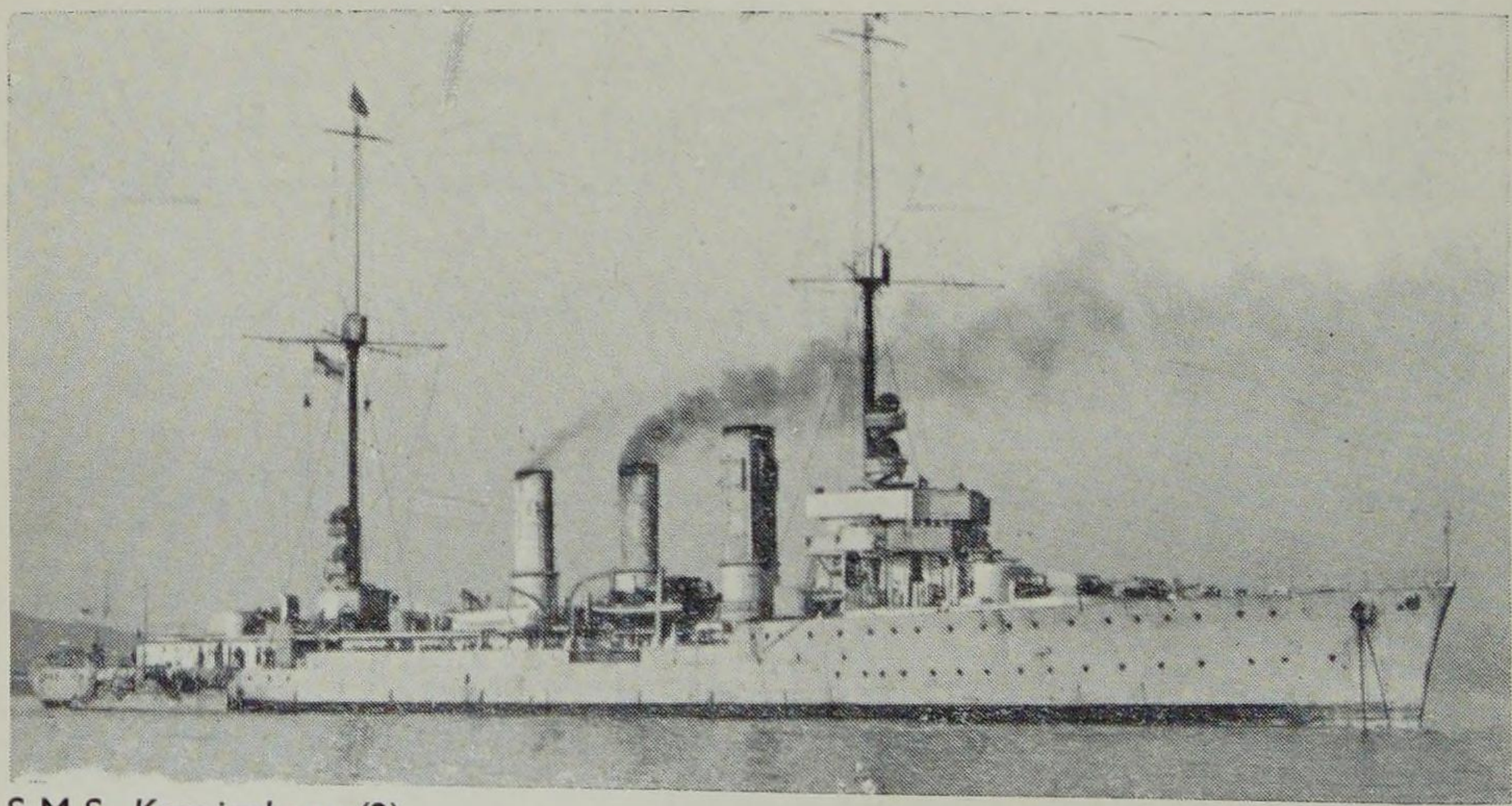
4th Ship

Note: *Bands indicate position in line rather than ships. Third and fourth funnels are not used.*





H.M.S. *Shannon* on patrol in 1917, dazzle-painted and with range-finding baffles. See page 72). [*I.W.M.*

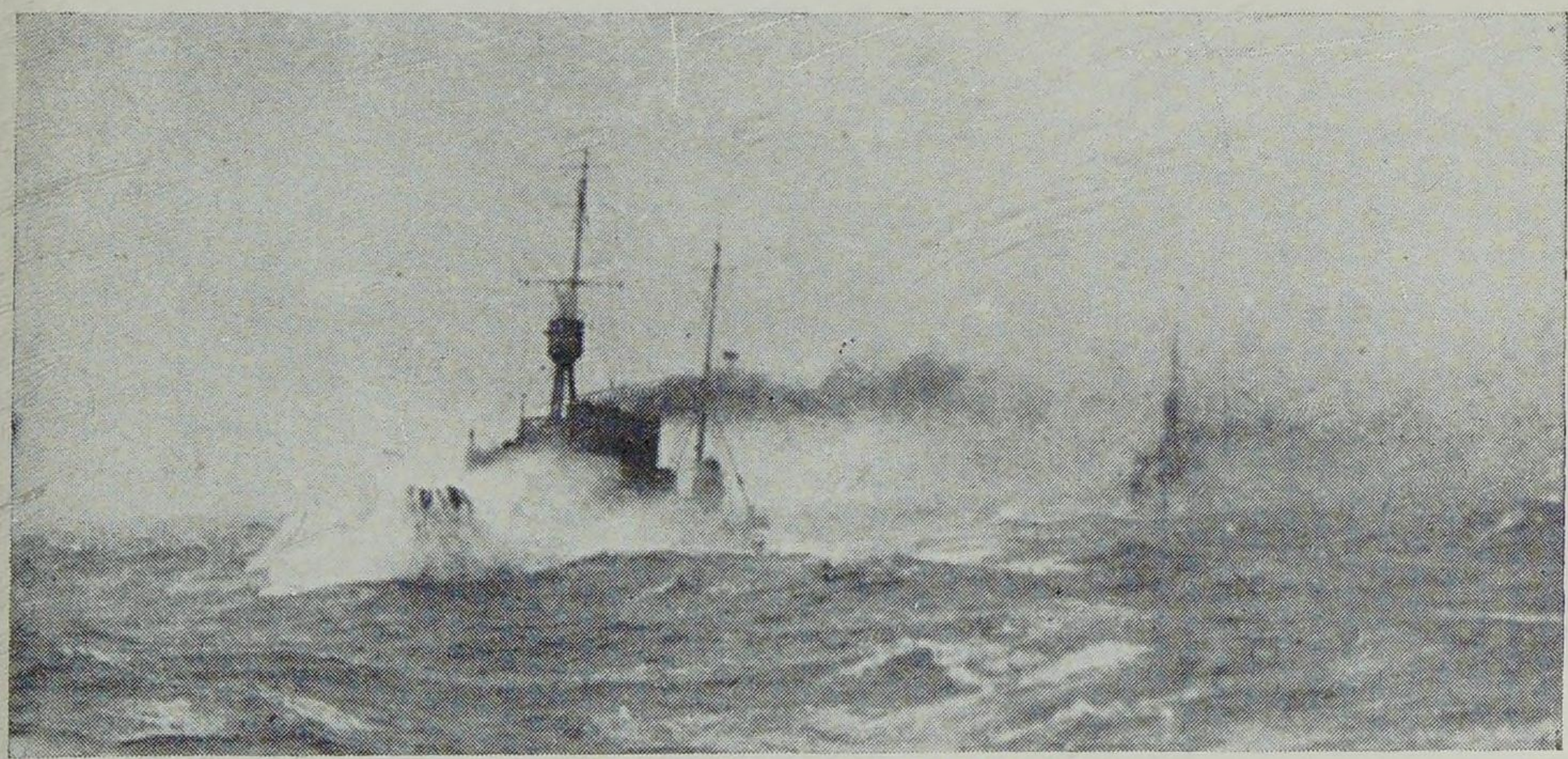


S.M.S. *Koenigsberg* (2). (See page 130). [*I.W.M.*

SECTION TWO

CRUISERS

(British and German)



Light Cruisers at sea during the war, showing H.M.S. *Dublin*. [*I.W.M*

H.M.S. *Southampton* on patrol in 1917. [I.W.M.

EVOLUTION OF THE CRUISER

From Frigate to Cruiser

FRIGATES of Nelson's day, the true ancestors of the modern cruiser, were light fast ships usually limited to one gun-deck. For scouting, shadowing and the carriage of urgent despatches, speed and handiness were essential. With the coming of steam these ships therefore received special attention and, by the late 1850s, speeds of 13 knots had been attained under steam power alone. In the 1860s, when iron battleships were introduced, the extra weight permitted only one gun-deck instead of three. These battleships therefore resembled frigates in outline and were in fact first referred to as " Iron-clad frigates ". The term " frigate ", having thus lost its precise meaning, fell into disuse as the old ships of this rating died out, and was replaced by "cruising ship " or "cruiser"

From 1860 to 1885 when new ideas were revolutionising the battleship, such cruising ships as were built followed traditional lines. With tonnage ranging from 3,000 to 7,630 three or them were armoured but were much too slow, whilst fifteen others were fast enough but had little or no protection. Amongst them however were *Iris* and *Mercury* of 1879—the first ships in the Navy to be built entirely of steel. These early cruisers, with the dwindling group of older frigates (3,000 to 5,600 tons) were supplemented by many smaller ships for patrolling the Seven Seas.

The smaller ships can be broadly classified as follows:—

Corvettes	about	2,800 to	1,800	tons
Sloops	,,	1,800 to	900	,,
Gunboats, 1st class	,,	900 to	600	,,
,, 2nd class	,,	600 to	400	,,

" Gun vessels " was an earlier inclusive term for the last two groups. The corvette was the predecessor of the modern light cruiser so it can be seen that the recently revived terms " frigate " and " corvette " bear no relation to their former use. All these older ships were built on traditional lines with full sail power, steam engines and screws. Working frequently under sail alone they had funnels that could be telescoped and, in some earlier ships, screws that could be raised. Although there was little change in outward appearance, wood construction was replaced by composite (wooden hull with iron framing) in the 1860s, to be succeeded in turn by iron and steel in the next two decades. As an anti-fouling measure ships' bottoms were often sheathed in copper. The corvettes *Sapphire* and *Diamond* of 1874 were the last wooden ships to be built for the Navy (until the advent of the magnetic mine).

The old cruising ships, together with some of the later corvettes and sloops, were subsequently included in their nearest official cruiser rating.

CRUISERS OF THE PRE-DREADNOUGHT ERA, 1885-1907

Cruisers as a distinct type date from the mid-1880s, when the conflicting trends in battleship evolution were crystallising into the pre-Dreadnought. Contemporary cruisers were divided into two main categories—protected and armoured. Protected cruisers were without side armour, their vital under-water parts—engines, boilers and magazines—being shielded by steel decks with thicknesses which varied from ¾ to 6in. Additional protection was afforded by arranging the coal bunkers at the sides of the ship and by the sub-division of the hull. Armoured cruisers, on the other hand, relied principally on side

armour. After seven ships of the " Orlando " class of 1886-7, no more armoured cruisers were built until 1899.

Cruisers of the pre-Dreadnought era may be summarised thus:—

35 Armoured	9,000—14,600 tons	Built	1899-1907
21 Protected, 1st class	7,350—14,200	,,	,,	1890-1898
51 Protected, 2nd class	3,400— 6,000	,,	,,	1885-1902
29 ,, 3rd class	2,000— 3,000	,,	,,	1888-1904

Of these 136 ships, 51 had already been discarded or reduced to non-combatant roles and seven converted to minelayers by the outbreak of war in 1914. There were also ten small cruisers of 1,000 to 1,850 tons (built 1885-90), and 33 Torpedo Gunboats of 525 to 1,070 tons (built 1886-94). Only 18 of the latter survived in 1914 and most of these had been converted to mine-sweepers.

Armoured cruisers, designed to form part of the battle fleet, were rendered obsolete by the advent of the battle cruiser in 1907, as were older battleships by the appearance of the Dreadnought. Armed with 9.2-in., 7.5-in. and 6-in. guns firing 380 lb., 200 lb. and 100 lb. shell respectively, the armoured cruisers' offensive power in the line of battle was small. Their protection was also inadequate, as the loss of *Black Prince*, *Defence* and *Warrior* at Jutland showed.

The function of protected cruisers was to guard our world-wide trade routes against raiders (as Britain then owned and operated half the world's merchant ship tonnage), to escort troopship convoys and to act as Naval outposts in distant parts of the globe.

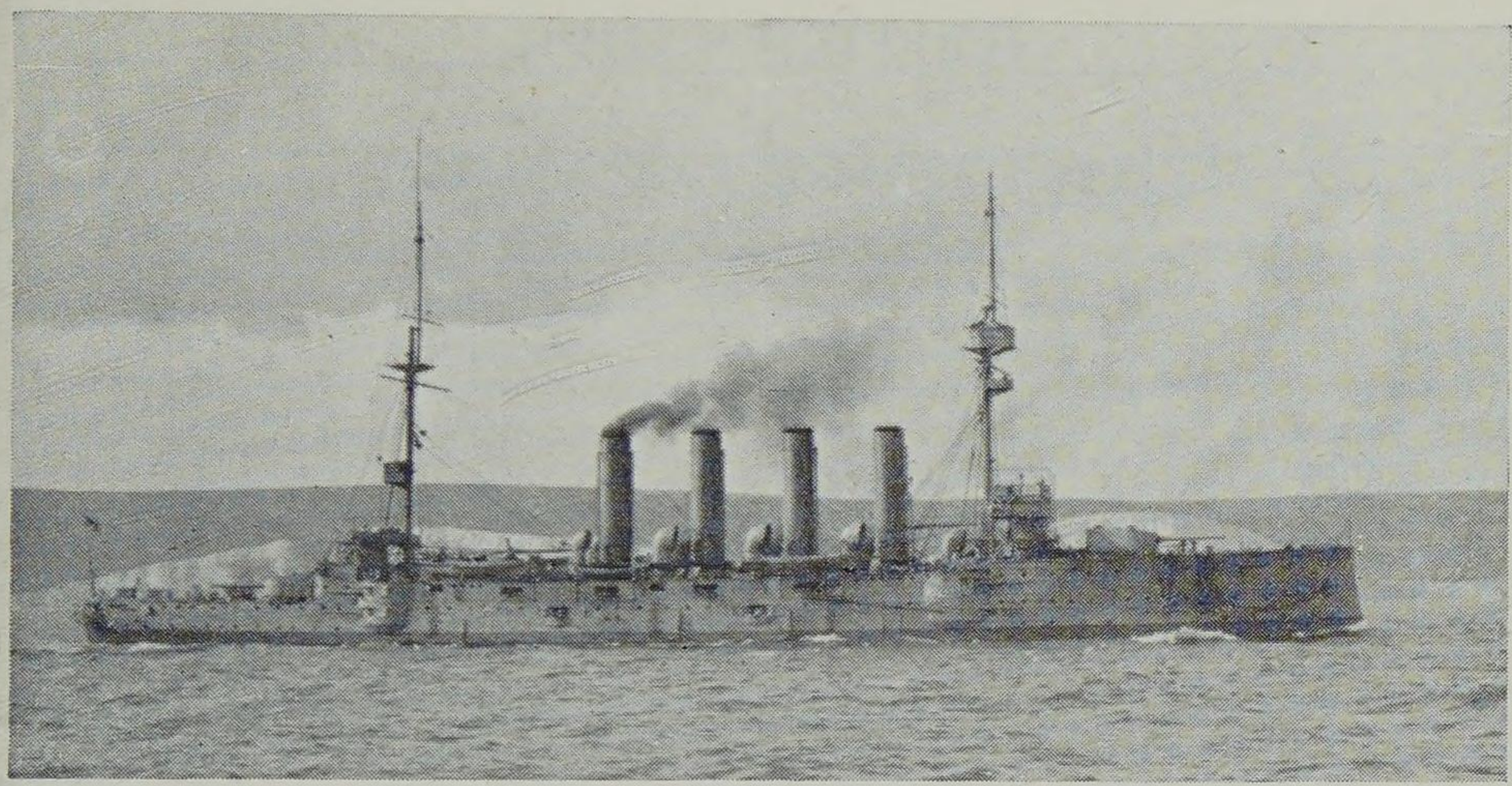
At the outbreak of war all these older cruisers were fully employed and were supplemented by Armed Merchant Cruisers converted from liners. Their usefulness declined once the German raiders had been accounted for and the overseas territories occupied. With the exception of those engaged on North Atlantic convoys, most of them were reduced to minor roles. Absorbing man power with their large crews, they were also very vulnerable to submarine attack. This was brought home as early as September 1914, when three 12,000-ton cruisers, *Aboukir*, *Cressy* and *Hogue*, were sunk with the loss of 1,400 men within an hour by the small submarine U9.

LIGHT CRUISERS

During the early 1900s destroyers were rapidly developing from enlarged torpedo boats into fast and dangerous warships. At the same time it was becoming increasingly clear that the threat to our Naval supremacy from Germany was growing. A new type of cruiser had therefore become necessary, light and fast enough to work with the destroyers, which would form a scouting screen for the battle fleet—a screen also capable of deadly attack upon the enemy under favourable conditions. With speed raised to 25 knots two groups of new ships were built:—

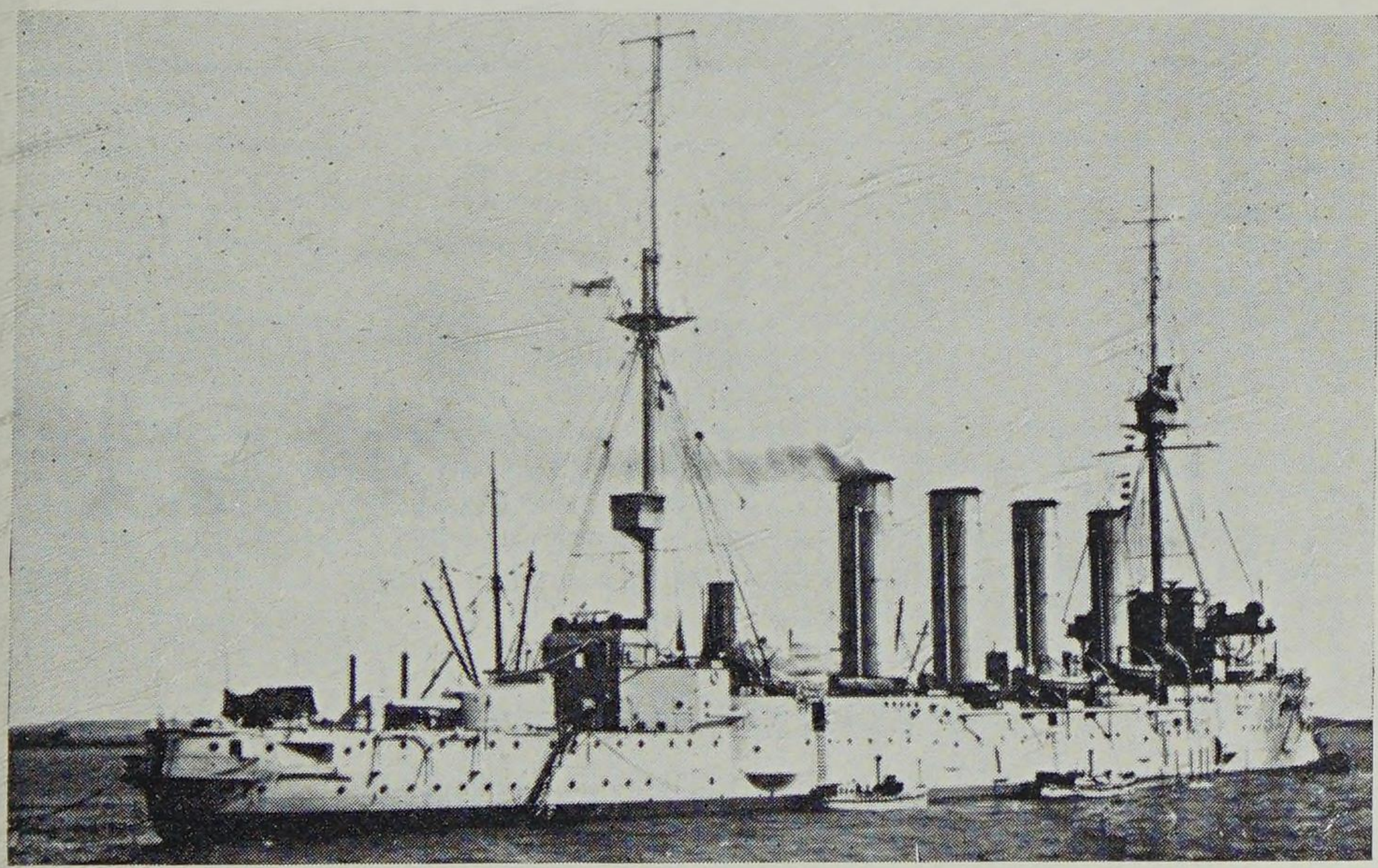
1. " Scouts " 1904-12 15 ships of 2,700-3,500 tons
2. " Towns " 1909-15 21 ,, ,, 4,800-5,500 tons, with a much larger radius of action and capable of operating from distant bases.

With the further rise in destroyer speeds a development of the Scout type was introduced. In the " Arethusa " class of 1913 speed was raised to 28.5 knots, the armament increased and an armour belt provided. As the tonnage remained at 3,500 the ships were very cramped internally. Succeeding groups of " C " class cruisers were progressively enlarged up to the " D " class of 1918. By the end of the war, construction of a greatly enlarged " E " class had begun. With a tonnage of 7,500 and a speed of 33 knots, they were designed to have a big margin of superiority over anything the enemy was likely to produce.



H.M.S. *Cressy*. [*Seward*

The tough little ships of the " Arethusa " and " C " classes stood up to torpedoes, mines and even hits from 12-in. shell. *Centaur*, for example, had both bow and stern blown off by mines but survived. Appropriately enough, one of them, *Cardiff*, had the distinction of leading the surrendered German High Seas Fleet across the North Sea in November 1918.



H.M.S. *Drake* in 1917 with 6 in. guns redistributed. [*I.W.M.*

BRITISH SHIPS

ARMOURED CRUISERS

The seven classes of these ships could be distinguished as follows:—

Class	*Funnels*	*Other features*			
Cressy	4	Cowls prominent		Casemates†	2
Drake	4	,, none		,,	4
Monmouth	3			,,	2
Devonshire	4	Beam turrets†	1	,,	1
Duke of Edinburgh	4	,, ,,	2		
Warrior	4	,, ,,	4		
Minotaur	4	,, ,,	5		

†On each beam.

When built, the last three classes had torpedo nets but these were removed before the War, whilst the last two classes had very short funnels which were heightened in 1909-11.

Wartime Alterations. (1) 6 in. guns mounted in lower casemates removed and in some cases remounted on the upper deck. (2) Later ships given tripod foremasts. (3) One topmast removed or shortened. (4) Those still at sea towards the end of the War dazzle-painted.

CRESSY CLASS

Length: 472 ft. *Beam:* 69½ ft. *Displacement:* 12,000 tons.
Triple expansion, (4-cyl.). 2 screws. 21,000 h.p. 21 knots.
Guns: 2—9.2 in., 12—6 in., 13—12 pdr. also smaller. *Torpedo tubes:* 2—18 in.
Armour: Belt 6 in., deck 3 in. *Complement:* 760.

Name	Completed	Builder		
Aboukir	1902	F.	1914	Torpedoed.
Bacchante	1902	C.	1920	Sold.
Cressy	1901	F.	1914	Torpedoed.
Euryalus	1903	V.	1920	Sold.
Hogue	1902	V.	1914	Torpedoed.
Sutlej	1902	C.	1920	Sold.

Aboukir, Cressy and *Hogue* were torpedoed by U9 in the North Sea in September, 1914. *Bacchante,* 1914 7th C.S. (flagship), Heligoland Bight, 1915 Dardanelles. 1917 W. Africa. *Euryalus,* 1914 7th C.S., Heligoland, 1915 Dardanelles, 1917, E. Indies (flagship), 1918 under conversion to minelayer. *Sutlej,* 1914 11th C.S. 1916 9th C.S., 1918 Overflow ship Rosyth.

DRAKE CLASS

Length: 535 ft. *Beam:* 71 ft. *Displacement:* 14,100 tons.
Triple expansion, (4-cyl.). 2 screws. 30,000 h.p. 24 knots.
Guns: 2—9.2 in., 16—6 in., 12—12 pdr., also smaller. *Torpedo tubes:* 2—18 in.
Armour: Belt 6 in., deck 2—3 in. *Complement:* 900.

DRAKE CLASS

Name	Completed	Builder		
Drake	1902	Pem. Dy.	1917	Torpedoed.
Good Hope	1902	F.	1914	Sunk at Coronel.
King Alfred	1903	C.	1920	Sold.
Leviathan	1903	V.	1920	Sold.

Drake: 1914 6th C.S., 1916 Atlantic Convoys. October 1917 torpedoed off N. Ireland.
King Alfred: 1914 6th C.S., spending most of the war on Atlantic patrols.
Leviathan: 1914 6th C.S. and convoys. 1915 W. Indies (flagship). 1918 Atlantic convoys.

MONMOUTH CLASS

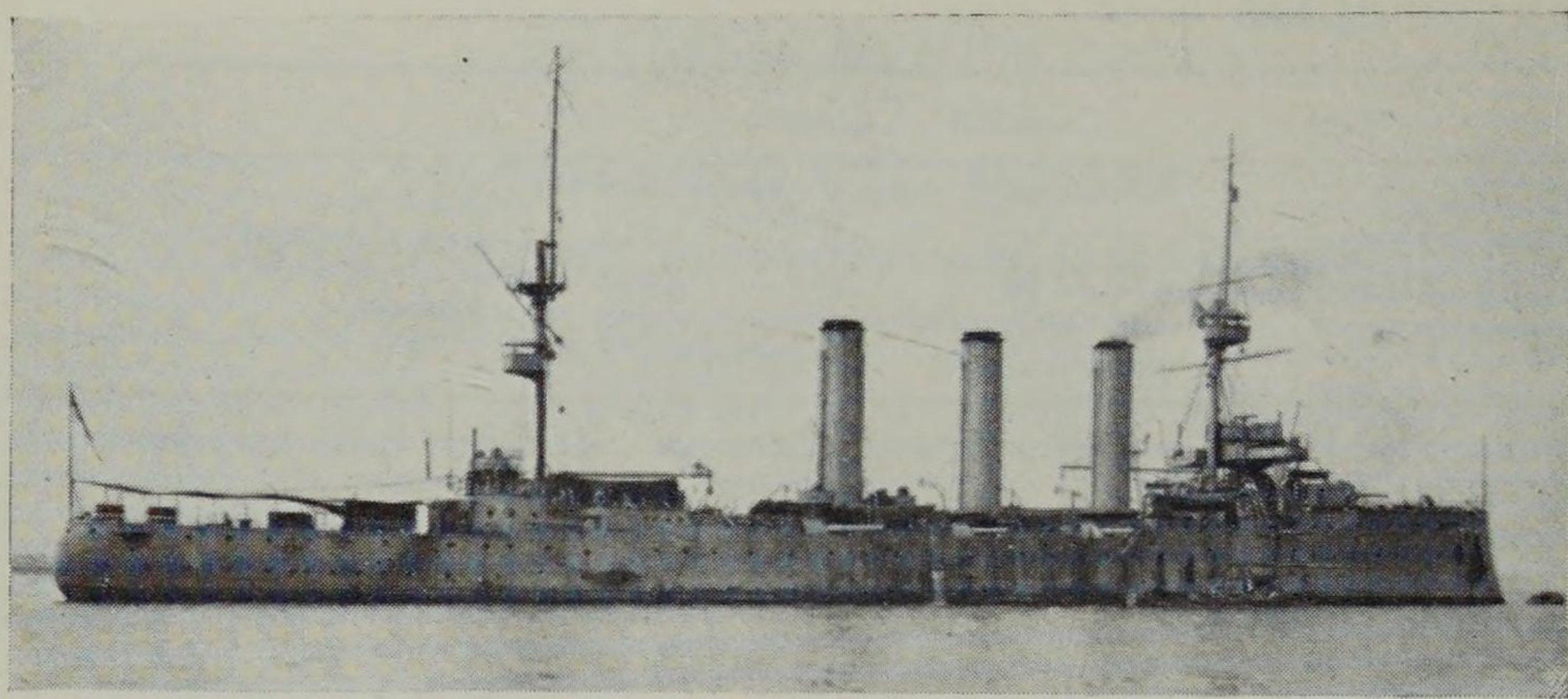
Length: 460 ft. *Beam:* 66 ft. *Displacement:* 9,800 tons.
Triple expansion, (4-cyl.). 2 screws. 22,000 h.p. 23 knots.
Guns: 14—6 in., 13—12 pdr., also smaller. *Torpedo tubes:* 2—18 in.
Armour: Belt 4 in., deck 2 in. *Complement:* 675—720.

Name	Completed	Builder		
Berwick	1903	WB.	1920	Sold.
Cornwall	1904	Pem. Dy.	1920	Sold.
Cumberland	1904	L. & G.	1921	Sold.
Donegal	1903	F.	1920	Sold.
Essex	1903	Pem. Dy.	1921	Sold.
Kent	1903	Pem. Dy.	1920	Sold.
Lancaster	1904	AW.	1920	Sold.
Monmouth	1903	L & G.	1914	Sunk at Coronel
Suffolk	1904	Pem. Dy.	1920	Sold.

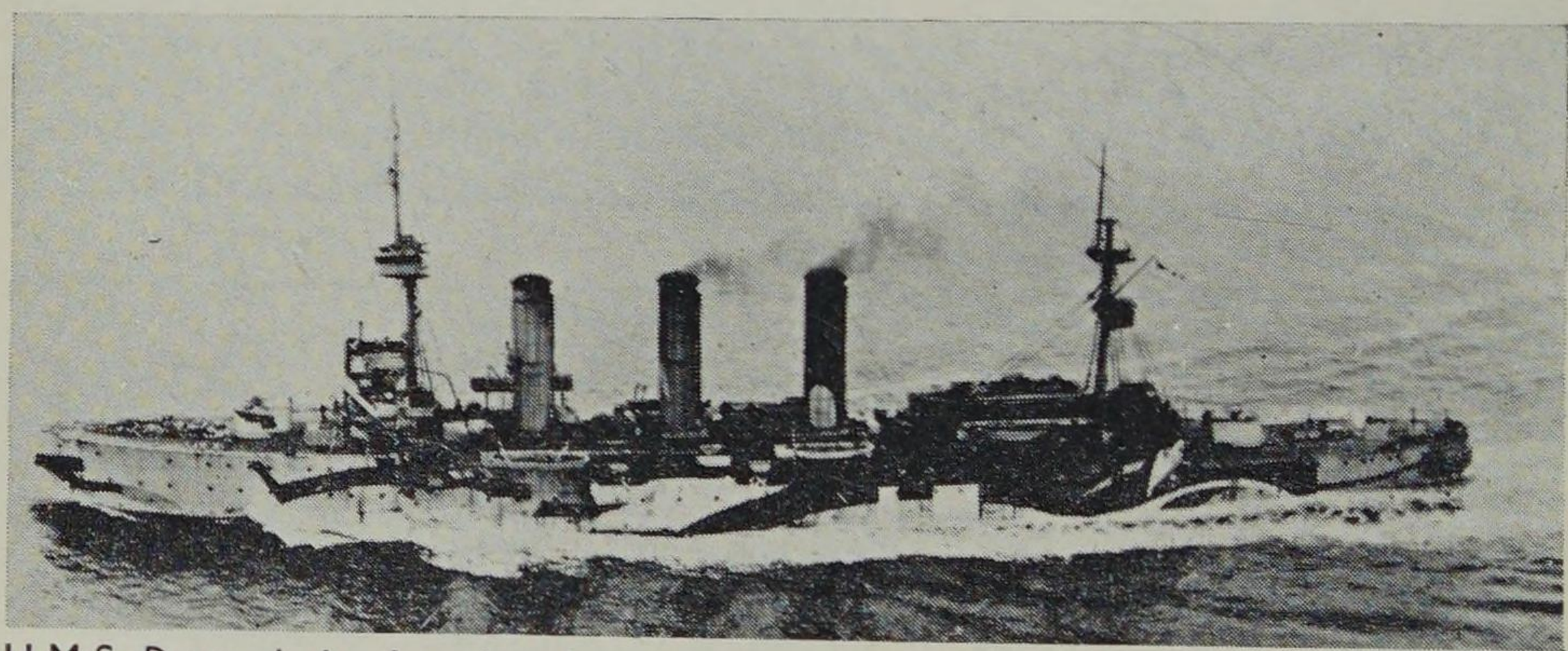
Sister ship: *Bedford* wrecked 1910.
Berwick: 1914 4th C.S., spending most of war on Atlantic patrols and convoys. *Cornwall:* 1914 with *Glasgow* sunk *Leipzig* at the Falklands, 1915 blockade of *Koenigsberg*, China Station, 1917 Atlantic convoys. *Cumberland:* 1914 Cameroons, 1915 onward Atlantic convoys. *Donegal* spent most of the war on Atlantic patrol. *Essex:* 1914 4th C.S. and Atlantic, 1916 converted to Destroyer Depot Ship. *Kent:* 1914 sank *Nurnberg* at the Falklands reaching her record speed of 25 knots. 1915 Pacific, 1918 China, 1919 Vladivostock. *Lancaster:* 1914 4th C.S., 1915 7th C.S., 1916 Pacific. *Suffolk:* 1914 4th C.S. (flagship), 1917 China, 1918 Vladivostock.

DEVONSHIRE CLASS

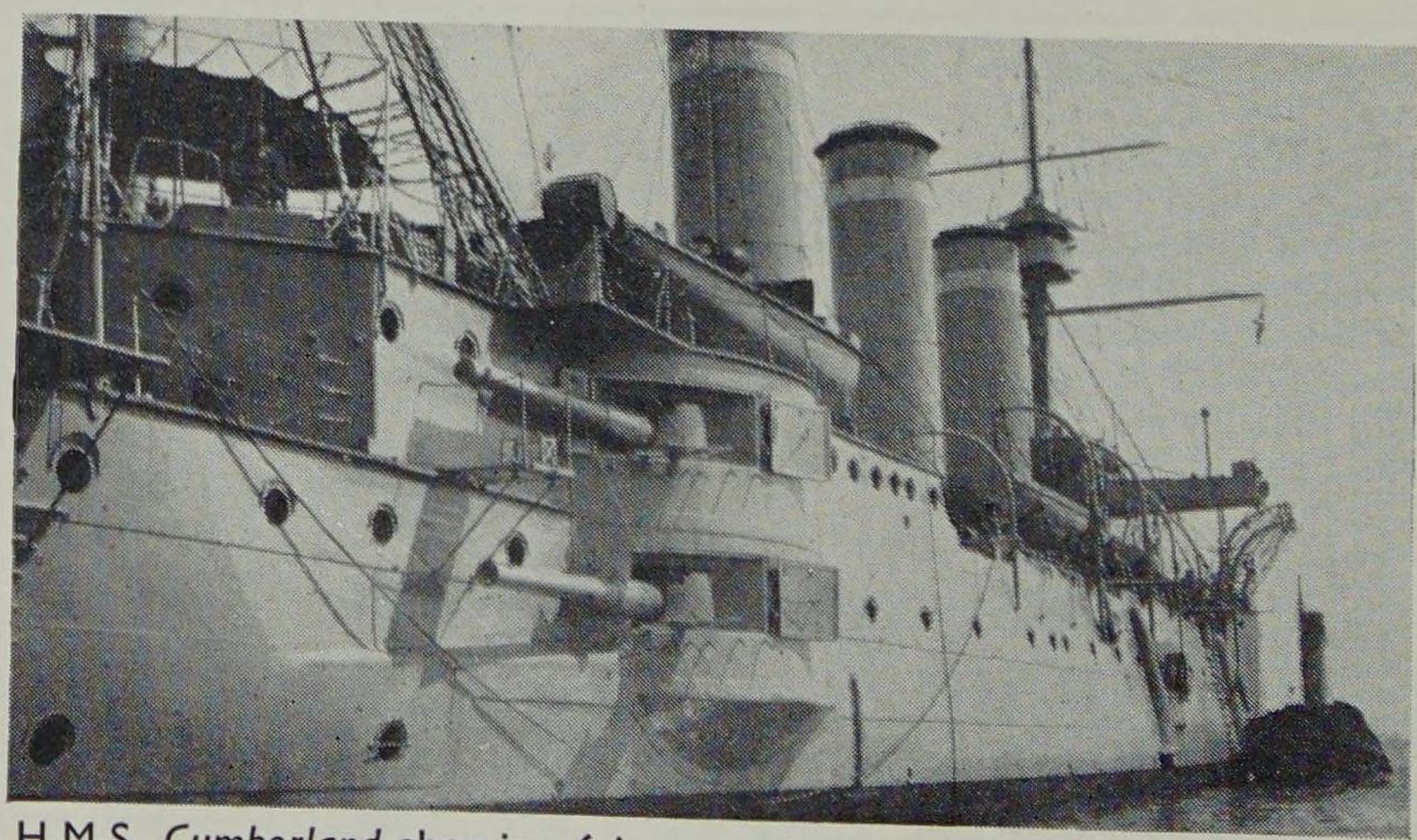
Length: 475 ft. *Beam:* 68½ ft. *Displacement:* 10,850 tons.
Triple expansion (4-cyl.). 2 screws. 21,000 h.p. 22.25 knots.
Guns: 4—7.5 in. 6—6 in., 2—12 pdr., also smaller. *Torpedo tubes:* 2—18 in.
Armour: Belt 6 in., deck 2 in. *Complement:* 655—700.



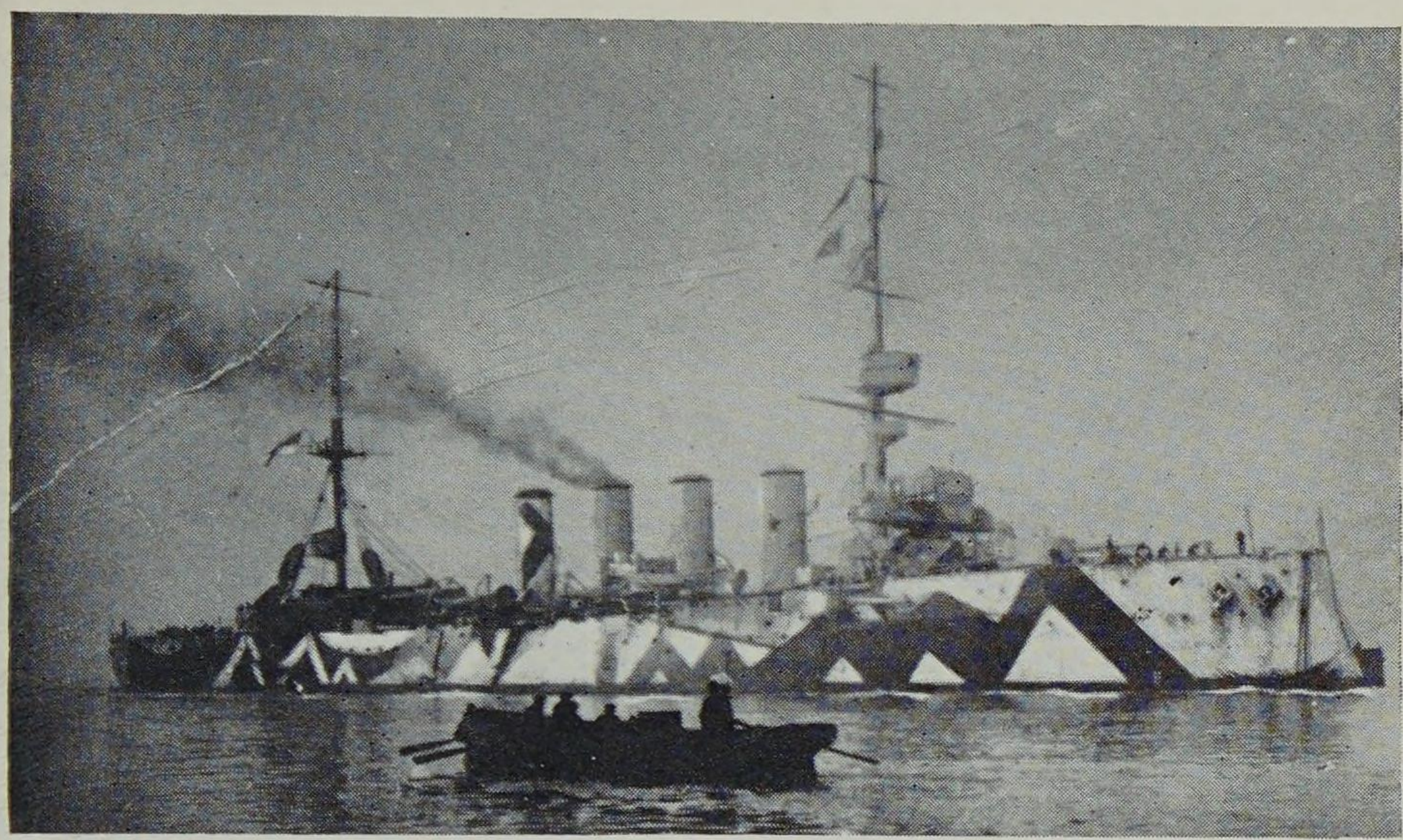
H.M.S. *Lancaster* with 6 in. guns moved to upper deck. [*I.W.M.*



H.M.S. *Donegal*. dazzle painted. [*N.P.C.*



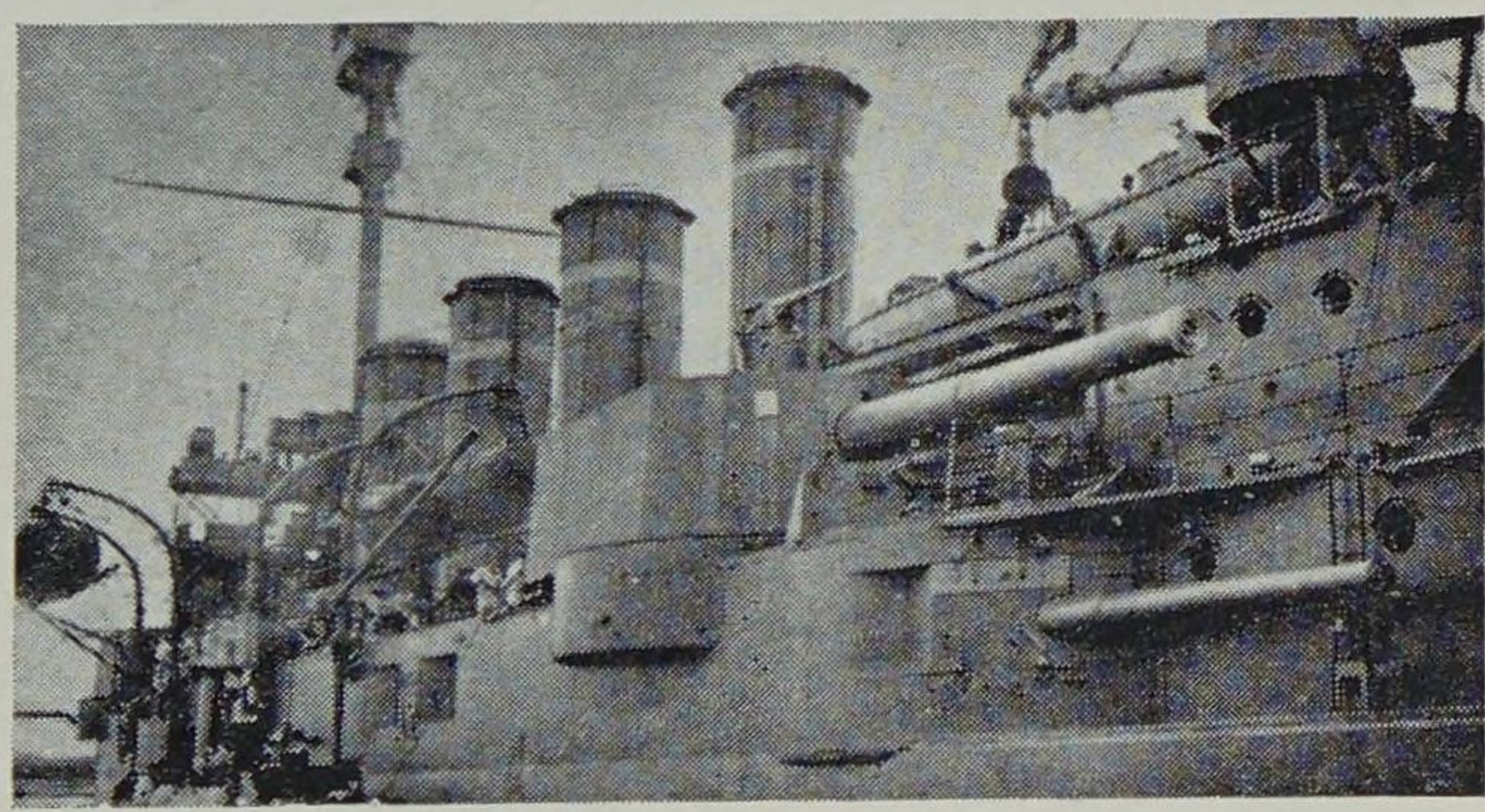
H.M.S. *Cumberland* showing 6 in. guns in casemates. During the war the lower guns were mounted on the upper deck.

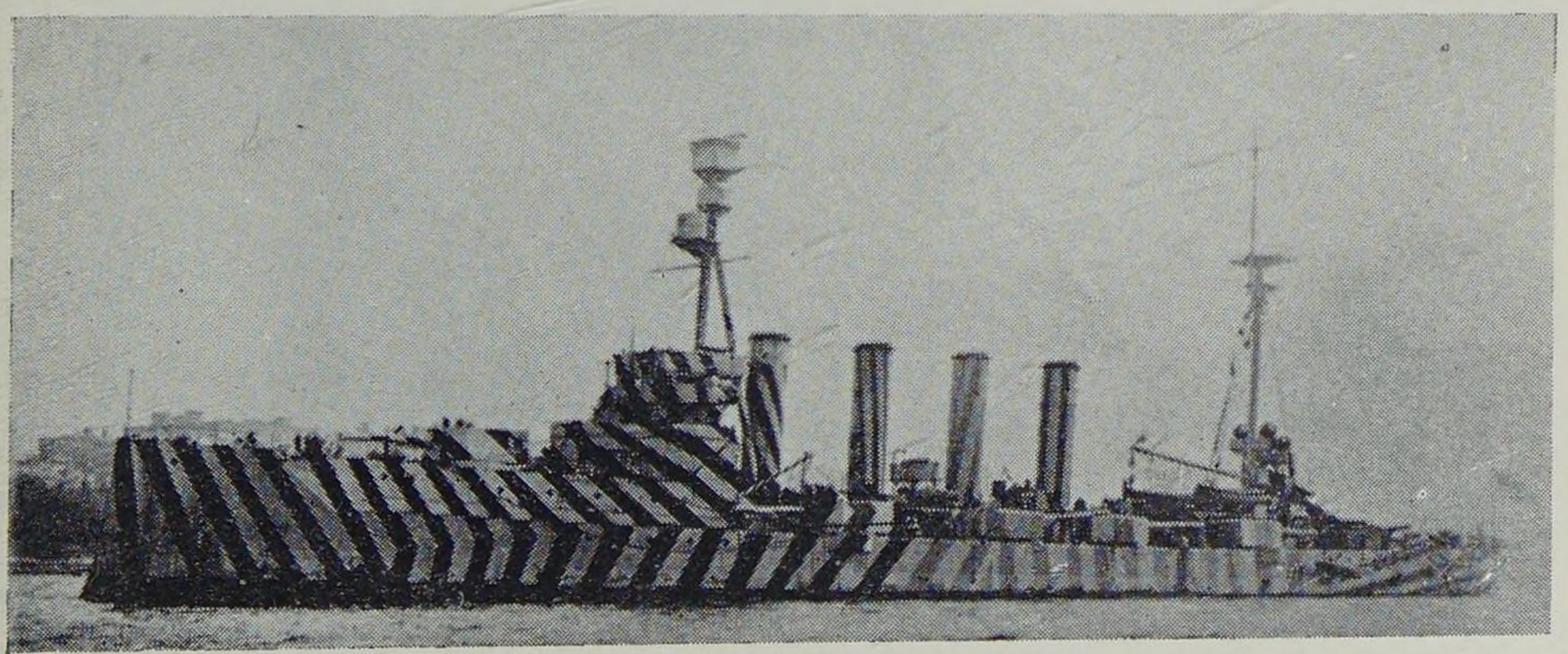


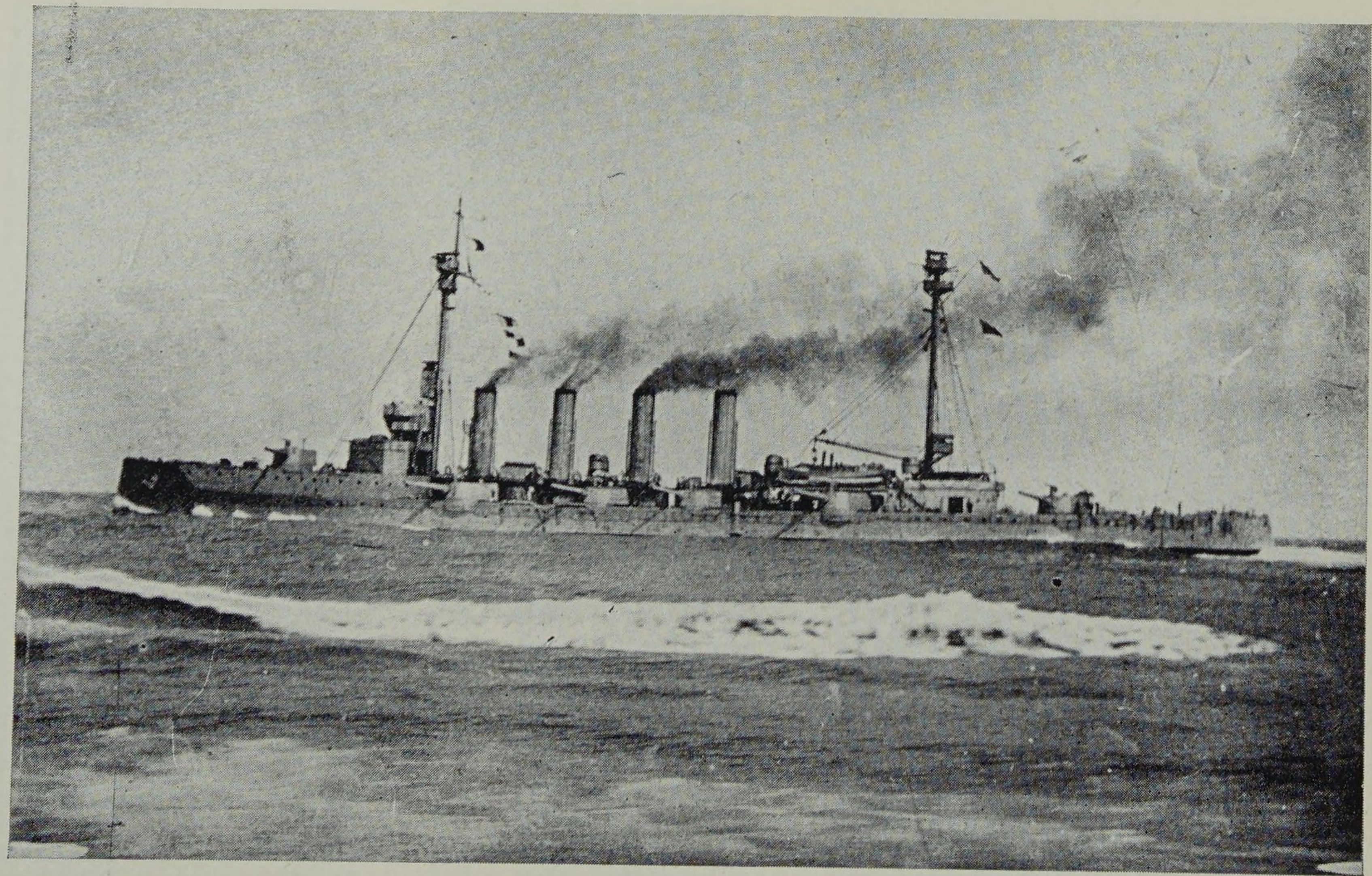
Top: H.M.S. *Roxburgh*, dazzle painted in 1918.

Right: H.M.S. *Duke of Edinburgh* before removal of 6 in. guns to upper deck.

Bottom: H.M.S. *Achilles* dazzle painted.







H.M.S. *Warrior* in 1916. [I.W.M.

DEVONSHIRE CLASS

Name	Completed	Builder		
Antrim	1905	C.	1922	Sold.
Argyll	1905	Sc.	1915	Wrecked.
Carnarvon	1904	WB.	1921	Sold.
Devonshire	1904	C.Dy.	1921	Sold.
Hampshire	1905	AW.	1916	Mined.
Roxburgh	1905	L. & G.	1921	Sold

Antrim: 1914 3rd C.S. (flagship), Heligoland, 1916 N. America and W. Indies station. *Argyll:* 1914 3rd C.S., Heligoland, Oct. 1915 wrecked off E. Scotland. *Carnarvon:* 1914 Falklands, 1915 struck shoal on Abrolhos Rocks and badly damaged, 1917 Atlantic convoys. *Devonshire:* 1914 3rd C.S., Heligoland, 1915 Dogger Bank, 1916 N. America and W. Indies. *Hampshire,:* 1914 China, 1915 Northern patrols, June 1916 mined off the Orkneys and sank with Lord Kitchener on board whilst en route to Russia. *Roxburgh:* 1914 3rd C.S., 1917 N. Atlantic patrols and convoys, sinking U89 in 1918.

DUKE OF EDINBURGH CLASS

Length: 505½ ft. *Beam:* 73 ft. *Displacement:* 13,550 tons.
Triple expansion, (4-cyl.). 2 screws. 23,500 h.p. 23 knots.
Guns: 6—9.2 in., 10—6 in., also smaller. *Torpedo tubes:* 3—18 in.
Armour: Belt 6 in., deck ¾ to 1½ in. *Complement:* 700—850.

Name	Completed	Builder		
Black Prince	1906	TIW.	1916	Sunk at Jutland.
Duke of Edinburgh	1906	Pem. Dy.	1920	Sold.

1914 both 1st C.S. *Duke of Edinburgh*, 1916 2nd C.S., 1917 Atlantic convoys.

WARRIOR CLASS

As above but *Guns:* 6—9.2 in., 4—7.5 in., also smaller.

Name	Completed	Builder		
Achilles	1907	HL.	1920	Sold.
Cochrane	1907	F.	1918	Wrecked.
Natal	1907	V.	1915	Blew up at Cromarty.
Warrior	1907	Pem. Dy.	1916	Sunk at Jutland.

Warrior: 1914 1st C.S. *Achilles, Cochrane, Natal*, 1914 2nd C.S., the first two at Heligoland. *Achilles, Cochrane* (and *Warrior*) at Jutland. *Achilles*, 1917 Atlantic convoys, 1918 Stoker's Training Ship. *Cochrane*, 1917 N. America and W. Indies, 1918 Murmansk, Nov. 1918 wrecked in the Mersey.

H.M.S. *Shannon* as built with short funnels. [*N.P.C.*

MINOTAUR CLASS

Length: 519 ft. *Beam:* 75 ft. *Displacement:* 14,600—16,100 tons.
Triple expansion, (4-cyl.). 2 screws. 27,000 h.p. 23 knots.
Guns: 4—9.2 in., 10—7.5 in., 16—12 pdr. *Torpedo tubes:* 5—18 in.
Armour: Belt 6 in., deck ¾ to 1½ in. *Complement:* 755—850.

Name	*Completed*	*Builder*		
Defence	1908	Pem. Dy.	1916	Sunk at Jutland.
Minotaur	1908	D.Dy.	1920	Sold.
Shannon	1908	C.Dy.	1920	Sold.

Defence: 1914-16 1st C.S. (flagship). *Minotaur:* 1914 China station, 1915 North Sea and 2nd C.S., 1916 Jutland, 1918 2nd C.S. (flagship). *Shannon:* 1914 2nd C.S., 1916 Jutland, 1918 Atlantic convoys.

PROTECTED CRUISERS (over 5,000 tons)

For convenience these ships are divided into three groups having (*a*) two, (*b*) three and (*c*) four funnels respectively.

(*a*) TWO FUNNEL SHIPS, distinguished by the guns mounted fore and aft:—

Class	*On forecastle*	*On after deck*
Crescent	Two separate 6 in.	One 9.2 in.
Edgar	One 9.2 in.	,, ,,
Eclipse	One 6 in.	Two separate 6 in.

Two larger ships, *Blake* and *Blenheim*, were converted to Destroyer Depot Ships in 1907.

CRESCENT CLASS

Length: 387 ft. *Beam:* 60⅔ ft. *Displacement:* 7,700 tons.
Triple expansion, (3-cyl.). 2 screws. 12,000 h.p. 19.5 knots.
Guns: 1—9.2 in., 12—6 in., also smaller. *Torpedo tubes:* 2—18 in.
Armour: Deck 2½ to 5 in. *Complement:* 520—550.

Name	*Completed*	*Builder*		
Crescent	1893	P.Dy.	1921	Sold.
Royal Arthur	1893	P.Dy.	1921	Sold.

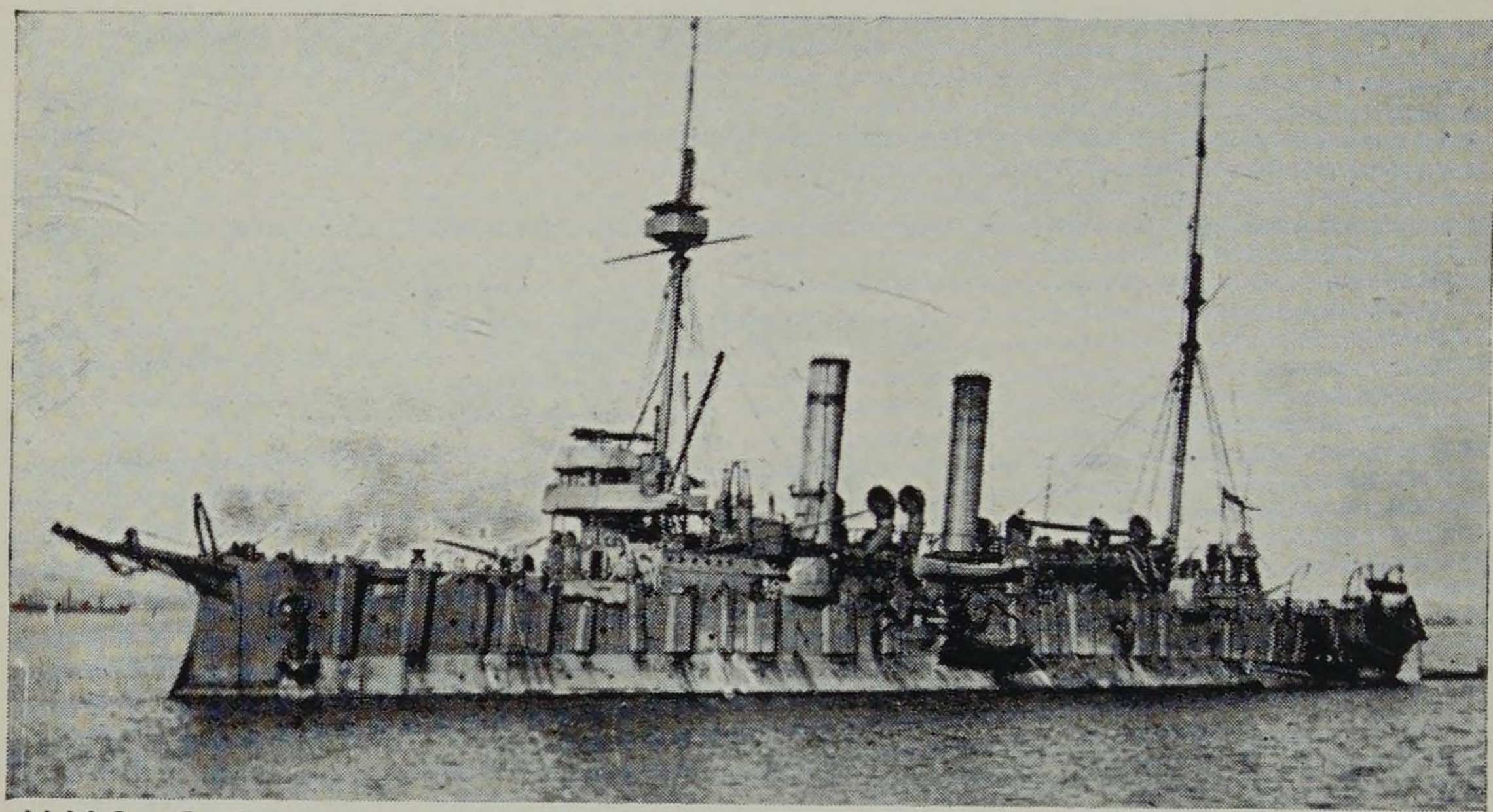
Crescent: 1914 10th C.S. (flagship), 1916 Depot Ship, 1917 Submarine Depot Ship. *Royal Arthur:* 1914 10th C.S., 1915 Base Ship at Scapa, later Submarine Depot Ship.

EDGAR CLASS

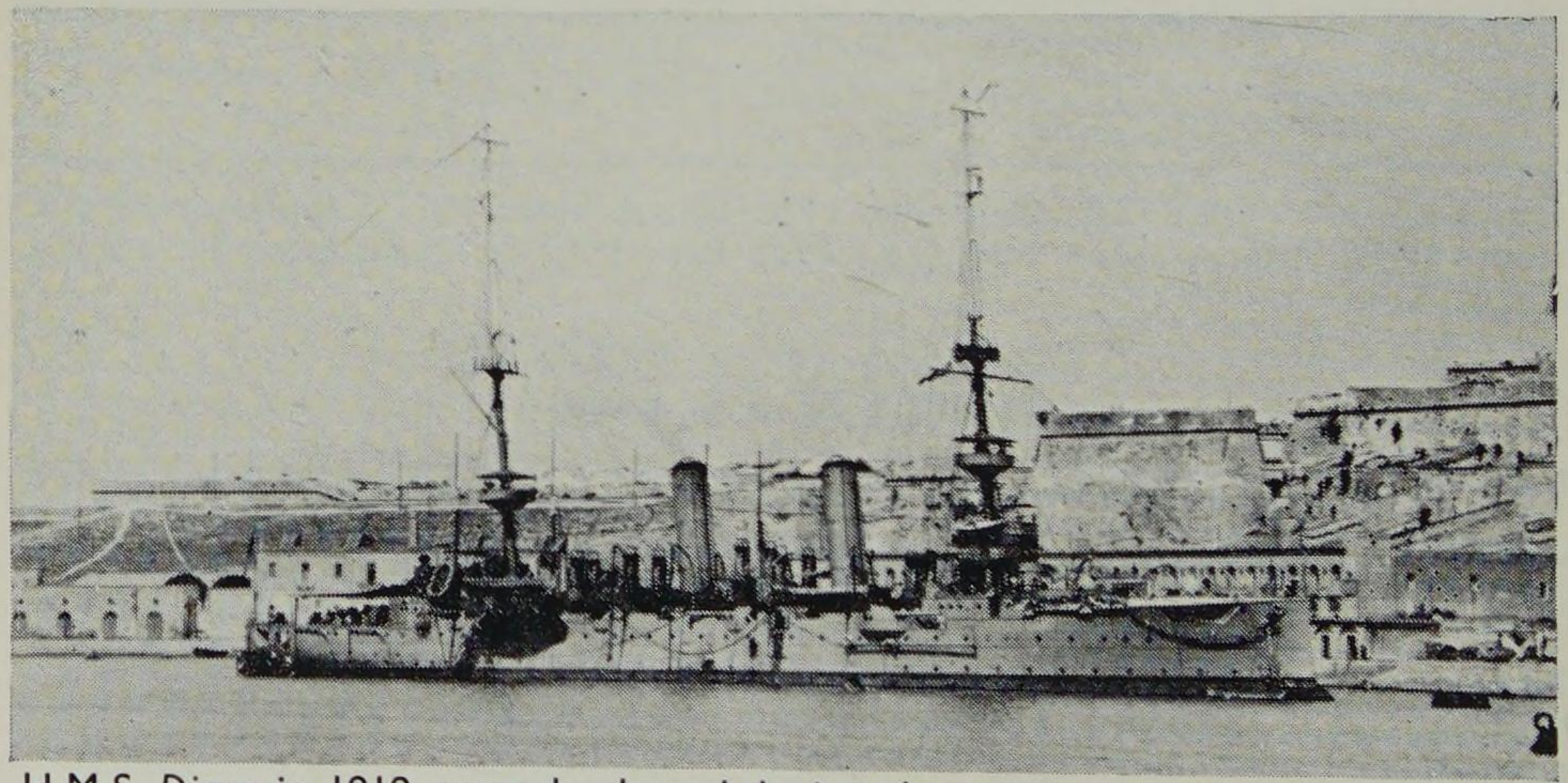
Very similar to " Crescent " class but with 2—9.2 in. and 10—6 in. guns.

Name	*Completed*	*Builder*		
Edgar	1893	D.Dy.	1921	Sold.
Endymion	1894	E.	1920	Sold.
Gibraltar	1894	WB.	1923	Sold.
Grafton	1894	TIW.	1920	Sold.
Hawke	1893	C.Dy.	1914	Torpedoed in North Sea.
Theseus	1894	TIW.	1921	Sold.

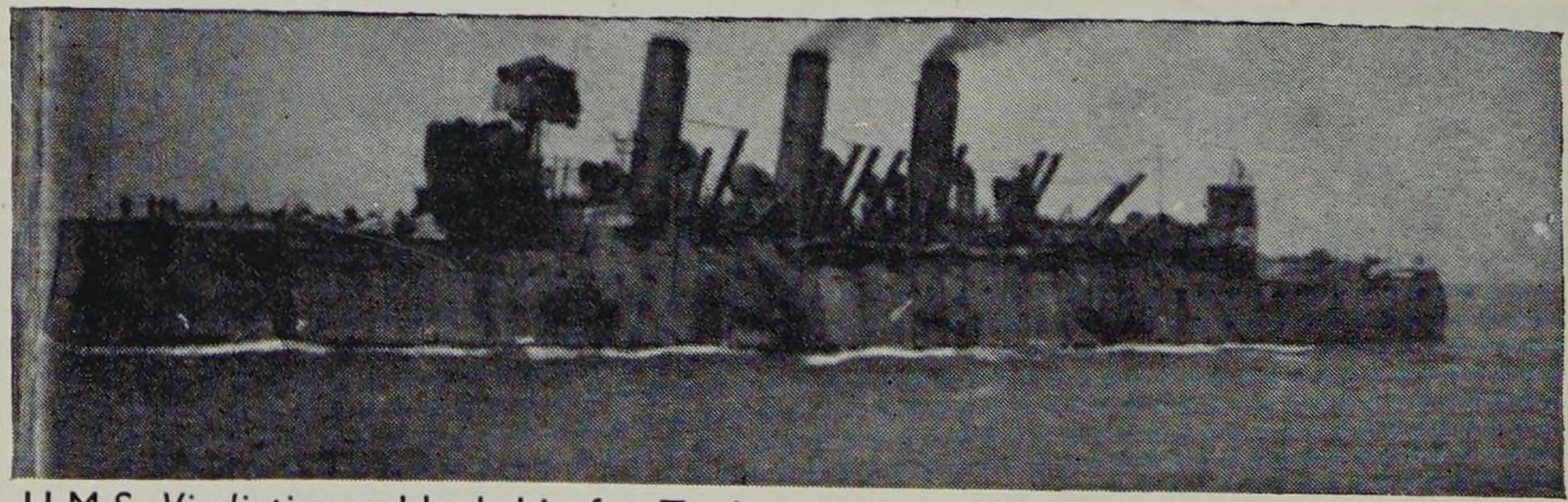
Sister ship: *St. George* converted to Destroyer Depot Ship in 1908-9. *Hawke* was repaired with a straight stem (in place of ram), after collision with S.S. *Olympic* in 1911. In 1914 all except *Gibraltar* were in the 10th C.S. *Hawke* was torpedoed in Oct. 1914 by U9. *Gibraltar* was Anti-submarine School, Portland, later a Depot Ship. The other four were rebuilt in 1914-15 with anti-mine or torpedo bulges and net-sweeping gallows for the Dardenelles. They were then distinguished by funnel bands:—*Edgar* none, *Endymion* one on after funnel, *Grafton* one on the fore and *Theseus* one on each. These four ships remained in the Mediterranean, *Grafton* and *Theseus* going on to the Black Sea in 1918.



H.M.S. *Grafton* reconstructed with bulges and net-sweeping gallows for the Dardanelles. [*I.W.M.*



H.M.S. *Diana* in 1919, scarcely altered during the war. [*I.W.M.*



H.M.S. *Vindictive* as blockship for Zeebrugge in 1918.

ECLIPSE CLASS

Length: 370 ft. *Beam:* 54 ft. *Displacement:* 5,600 tons.
Triple expansion, (3-cyl.). 2 screws. 9,600 h.p. 19.5 knots.
Guns: 11—6 in., 9—12 pdr., also smaller. *Torpedo tubes:* 3—18 in.
(*Eclipse* retained the original armament of 5—6 in. and 6—4.7 guns).
Armour: Deck 2½ in. *Complement:* 450.

Name	Completed	Builder	
Diana	1899	F.	1920 Sold.
Doris	1897	V.	1919 Sold.
Eclipse	1897	P.Dy.	1921 Sold.
Isis	1898	L. & G.	1920 Sold.
Juno	1898	V.	1920 Sold.
Minerva	1896	C.Dy.	1920 Sold.
Talbot	1896	D.Dy.	1920 Sold.
Venus	1897	F.	1921 Sold.

Sister ship: *Dido* converted to Destroyer Depot Ship in 1913. In 1914 *Doris, Isis, Juno, Minerva* and *Venus* formed the 11th C.S., whilst *Eclipse, Diana* and *Talbot* were in the 12th C.S. In 1915 *Doris, Minerva* and *Talbot* went to the Dardanelles, *Juno* and *Venus* to the Red Sea and Persian Gulf and *Diana* to China. *Diana, Doris, Juno* and *Venus* later went to the E. Indies station, *Talbot* and *Minerva* to E. Africa. *Eclipse* became a Depot Ship in 1916 and *Isis* joined the N. America and W. Indies squadron.

(*b*) THREE FUNNEL SHIPS could be distinguished as follows:—

Class	*Cowls*	*Guns on after deck.*
Arrogant	Two heights.	One 6 in.
Highflyer	Even height.	Two 6 in.
Challenger	None.	,, ,,

ARROGANT CLASS

Length: 342 ft. *Beam:* 57½ ft. *Displacement:* 5,750 tons.
Triple expansion 2 screws. 10,000 h.p. 19 knots.
Guns: 10—6 in., 9—12 pdr., also smaller. *Torpedo tubes:* 3—18 in.
Armour: Deck 3 in. *Complement:* 480.

Name	Completed	Builder	
Vindictive	1899	C.Dy.	1918 Sunk as blockship, Ostende.

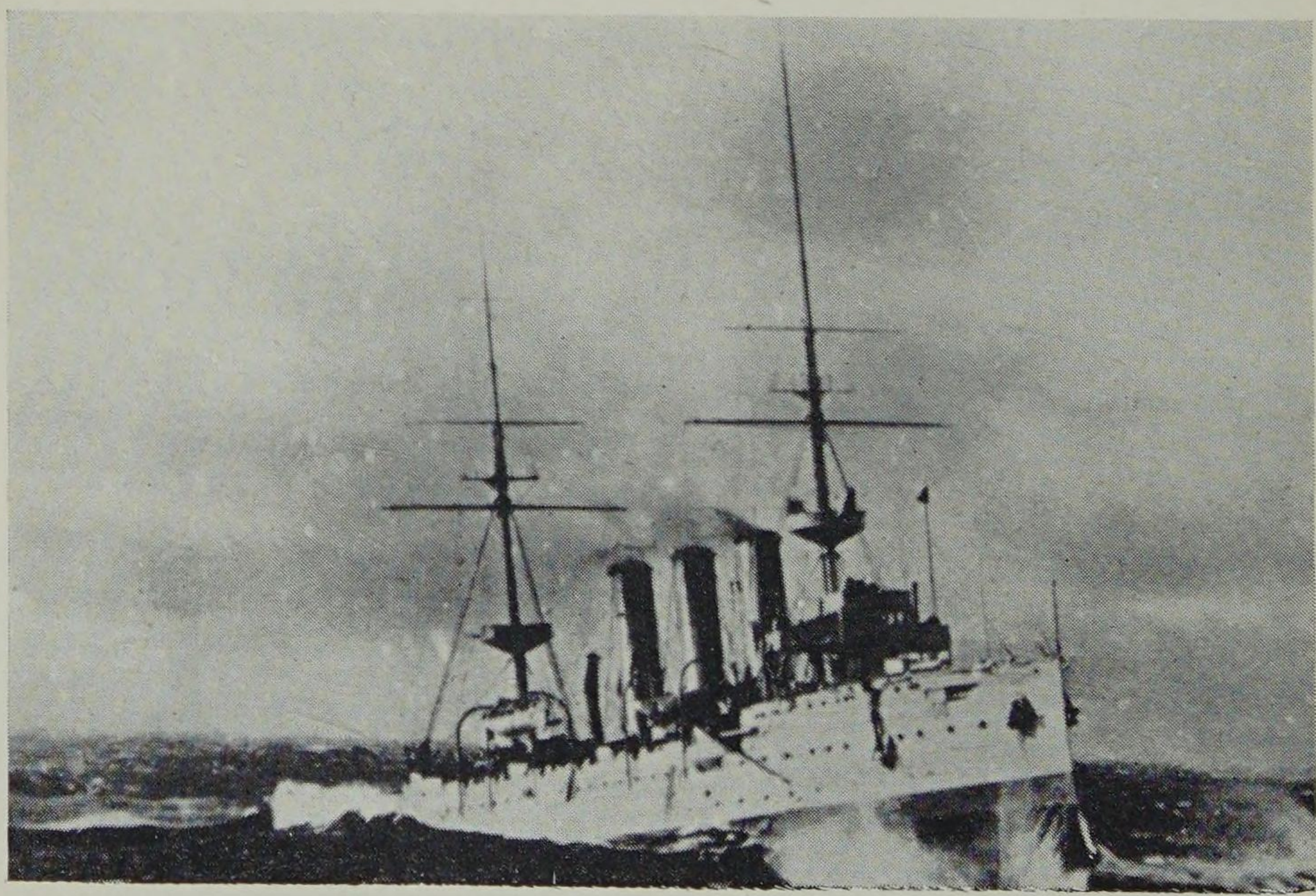
Sister ships: *Gladiator* sunk in collision 1908. *Arrogant* converted to a Submarine Depot Ship in 1911-12. *Furious*, converted to a hulk was later renamed *Forte*. *Vindictive:* 1914 9th C.S., later sent to S.E. Coast of S. America, 1916-17 White Sea, 1918 sunk as blockship at Zeebrugge during the famous exploit of 10th May.

HIGHFLYER CLASS

Length: 370 ft. *Beam:* 54 ft. *Displacement:* 5,600 tons.
Triple expansion, (4-cyl.). 2 screws. 10,000 h.p. 20 knots.
Guns: 11—6 in., 9—12 pdr., also smaller. *Torpedo tubes:* 2—18 in.
Armour: Deck 3 in. *Complement:* 450—500.

Name	Completed	Builder		
Hermes	1900	F.	1914	Torpedoed.
Highflyer	1900	F.	1921	Sold at Bombay.
Hyacinth	1901	L. & G.	1923	Sold.

Hermes, altered to carry seaplanes, was torpedoed in Oct. 1914 by U27 in the Straits of Dover. *Highflyer* was in the 9th C.S. in 1914 when she disabled the armed merchant cruiser *Kaiser Wilhelm der Grosse* (which was scuttled to avoid capture). Remaining in the Atlantic, she became flagship in the W. Indies until transferred to the E. Indies in 1919. *Hyacinth* was in E. African waters throughout the War, including German E. Africa campaign.



H.M.S. *Challenger* in heavy weather. [*N.P.C.*

CHALLENGER CLASS

Length: 376 ft. *Beam:* 56 ft. *Displacement:* 5,915 tons.
Triple expansion 2 screws. 12,500 h.p. 21 knots.
Guns: 11—6 in., 9—12 pdr., also smaller. *Torpedo tubes:* 2—18 in.
Armour: Deck 2 to 3 in. *Complement:* 475.

Name	Completed	Builder	
Challenger	1904	C.Dy.	1920 Sold
Encounter	1905	D.Dy.	1929 Discarded.

Challenger: 1914 9th C.S. and detached to W. Coast of Africa for the Cameroons Campaign, 1915 onwards E. Africa station. *Encounter*, based in Australia during the War, was presented to the R.A.N. in 1919 and renamed *Penguin* in 1923. 1932, towed out and sunk off Sydney.

(*c*) FOUR FUNNEL SHIPS were represented by the " Diadem " class only, which resembled the armoured cruisers of the " Cressy " class (p. 7). They could be distinguished by having pairs of separate 6 in. guns fore and aft, whereas the " Cressy's " had single 9.2 in. guns in turrets.

DIADEM CLASS

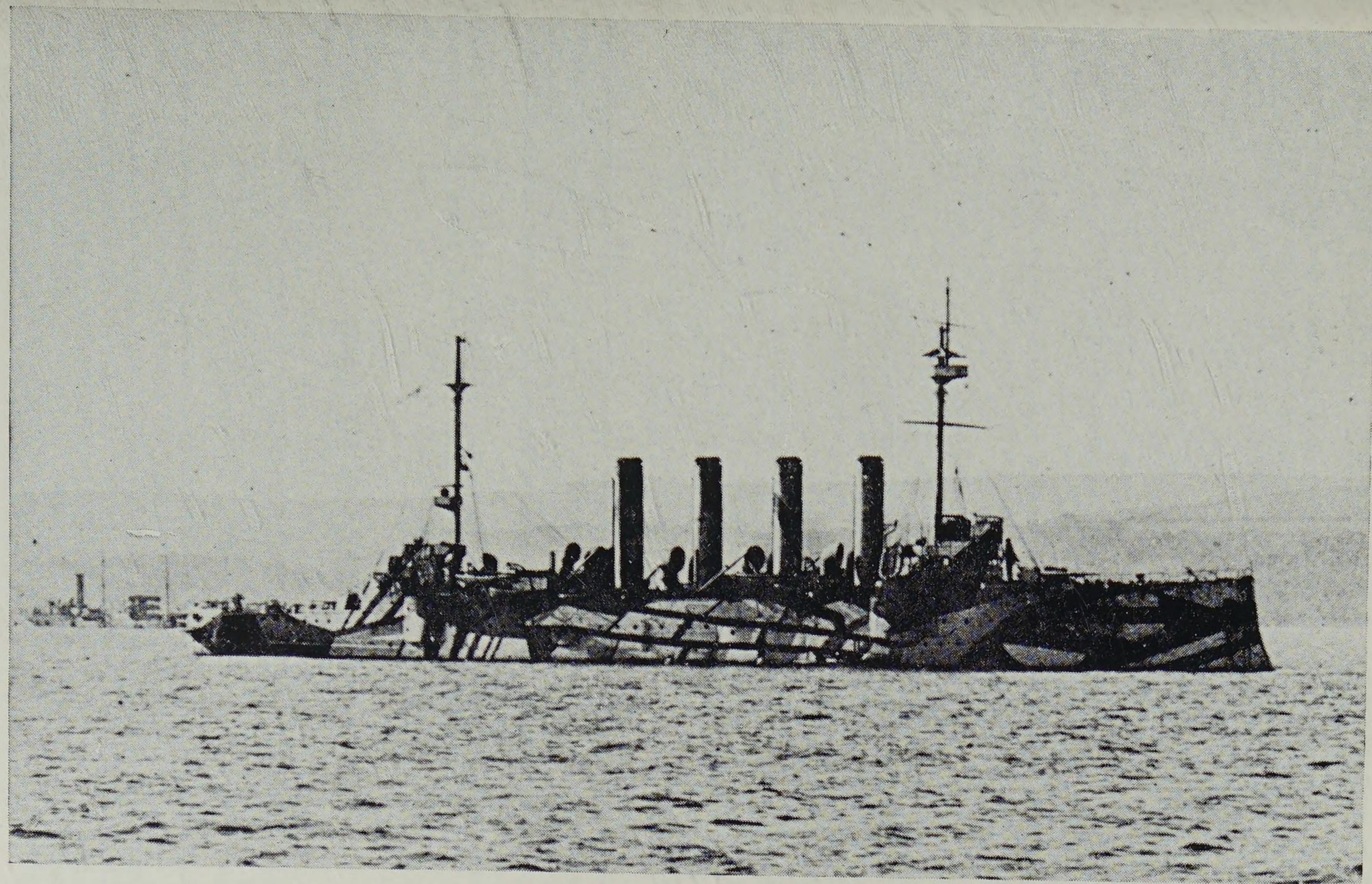
Length: 450 ft. *Beam:* 69 ft. *Displacement:* 11,000 tons.
Triple expansion. (4-cyl.). 2 screws. 16,500 h.p. 20-25 knots.
Guns: 16—6 in., 14—12 pdr., also smaller. *Torpedo tubes:* 2—18 in.
Armour: Deck 4 in. *Complement:* 700.

Name	Completed	Builder	
Amphitrite	1900	V.	1920 Sold.
Argonaut	1900	F.	1920 Sold.
Ariadne	1900	C.	1917 Torpedoed.
Diadem	1898	F.	1921 Sold.
Europa	1899	C.	1920 Sold.
Niobe	1898	V.	1920 Discarded.

Sister ships: *Andromeda* and *Spartiate* converted to Training Establishments In 1914 *Amphitrite*, *Argonaut* and *Europa* (flagship) were in the 9th C.S. *Europa* became flagship at Mudros 1915-19. *Amphitrite* converted to a Minelayer 1916-17. *Argonaut* became an Accommodation Ship at Portsmouth in 1916. *Ariadne* and *Diadem* were Stoker's Training Ships in 1914, but *Ariadne* was converted to a Minelayer in 1916-17 and was torpedoed off Beachy Head in July 1917. *Niobe* (to R.C.N. 1910), 1914 Atlantic patrols, 1915 converted to Depot Ship at Halifax N.S.

Two larger protected cruisers, *Powerful* and *Terrible* of 14,100 tons, were converted to Training Establishment hulks before the War.

H.M.S. *Europa* partly camouflaged, in the Mediterranean. [I.W.M



H.M.S. *Amphitrite* as a dazzle-painted minelayer.

PROTECTED CRUISERS (under 5,000 tons)

By 1914 this once large group had shrunk to a handful and, but for the War, would have been discarded rapidly with the exception of the four more recent " Gems ". The older two-funnelled classes were of similar appearance but differed considerably in size:—

Class	*Funnels*	
Astraea	2	Upperworks raised amidships.
Apollo	2	Turtle-back forecastle and raised poop.
Pelorus	2	Raised forecastle and poop.
Gem	3	,, ,, ,, ,,

The first two classes had torpedo tube casings built into the bows. " Gems" differed from three-funnel " Scouts " in having mainmasts.

ASTRAEA CLASS

Length: 342 ft. *Beam:* 49½ ft. *Displacement:* 4,360 tons.
Triple expansion (3-cyl.). 2 screws. 9,000 h.p. 19.5 knots.
Guns: 2—6 in., 8—4.7 in., also smaller. *Torpedo tubes:* 4—18 in.
Armour: Deck 2 in. *Complement:* 326.

Name	Completed	Builder		
Astraea	1894	D.Dy.	1920	Sold.
Charybdis	1895	Sh.Dy.	1922	Sold at Bermuda.
Fox	1895	P.Dy.	1920	Sold.

Sister ships: *Forte* sold 1914, *Cambrian* converted to Training Establishment 1914. *Bonaventure* converted to Submarine Depot Ship 1910-11. *Flora* converted to a workshop. *Hermione* became Depot Ship for patrol vessels at Southampton 1914, burnt out 1916.
Astraea, 1914-18 Cape of Good Hope station. *Charybdis*, 1914 12th C.S. (flagship), 1915 badly damaged in collision and subsequently based at Bermuda. *Fox*, 1914 Indian Ocean, 1917 Red Sea patrol, 1919 Archangel.

APOLLO CLASS

Length: 314 ft. *Beam:* 42⅔ ft. *Displacement:* 3,440—3,600 tons.
Triple expansion (3-cyl.). 2 screws. 9,000 h.p. 20 knots.
Guns: 2—6 in., 6—4.7 in., also smaller. *Torpedo tubes*: 4—14 in.
Armour: Deck 2 in. *Complement:* 273 (Minelayers 185).

Name	Completed	Builder		
Brilliant	1893	Sh.Dy.	1918	Sunk as blockship, Ostend.
Rainbow	1892	Pal.	1920	Discarded.
Sirius	1892	AW.	1918	Sunk as blockship, Ostend.
Sappho	1893	Sam.	1921	Sold.

APOLLO CLASS

Converted to Minelayers (150 mines) with 6—6 pdr. guns only in 1905-10.*

Andromache	1893	C.Dy.	1920	Sold.
Apollo	1894	C.Dy.	1920	Sold.
Iphigenia	1892	L. & G.	1918	Sunk as blockship, Zeebrugge.
Intrepid	1894	L. & G.	1918	Sunk as blockship, Zeebrugge.
Latona	1893	V.	1920	Sold at Malta.
Naiad	1893	V.	1922	Sold.
Thetis	1892	C.	1918	Sunk as blockship, Zeebrugge.

* *Some had 4 in. guns added later.*

Sister ships: *Sybille* wrecked 1901. *Aeolus, Melampus, Melpomene, Pique, Retribution, Scylla, Terpsichore* and *Tribune* sold 1910-14.
Brilliant, 1914 North Sea patrols, later based on Lerwick. *Rainbow* (to Canada 1910), 1914-15 Pacific patrols. *Sirius:* 1914 North Sea, 1915 W. Africa and the Cape. *Sappho:* 1914-17 attached Grand Fleet for subsidiary duties, 1918 converted to blockship but broke down en route to Zeebrugge.

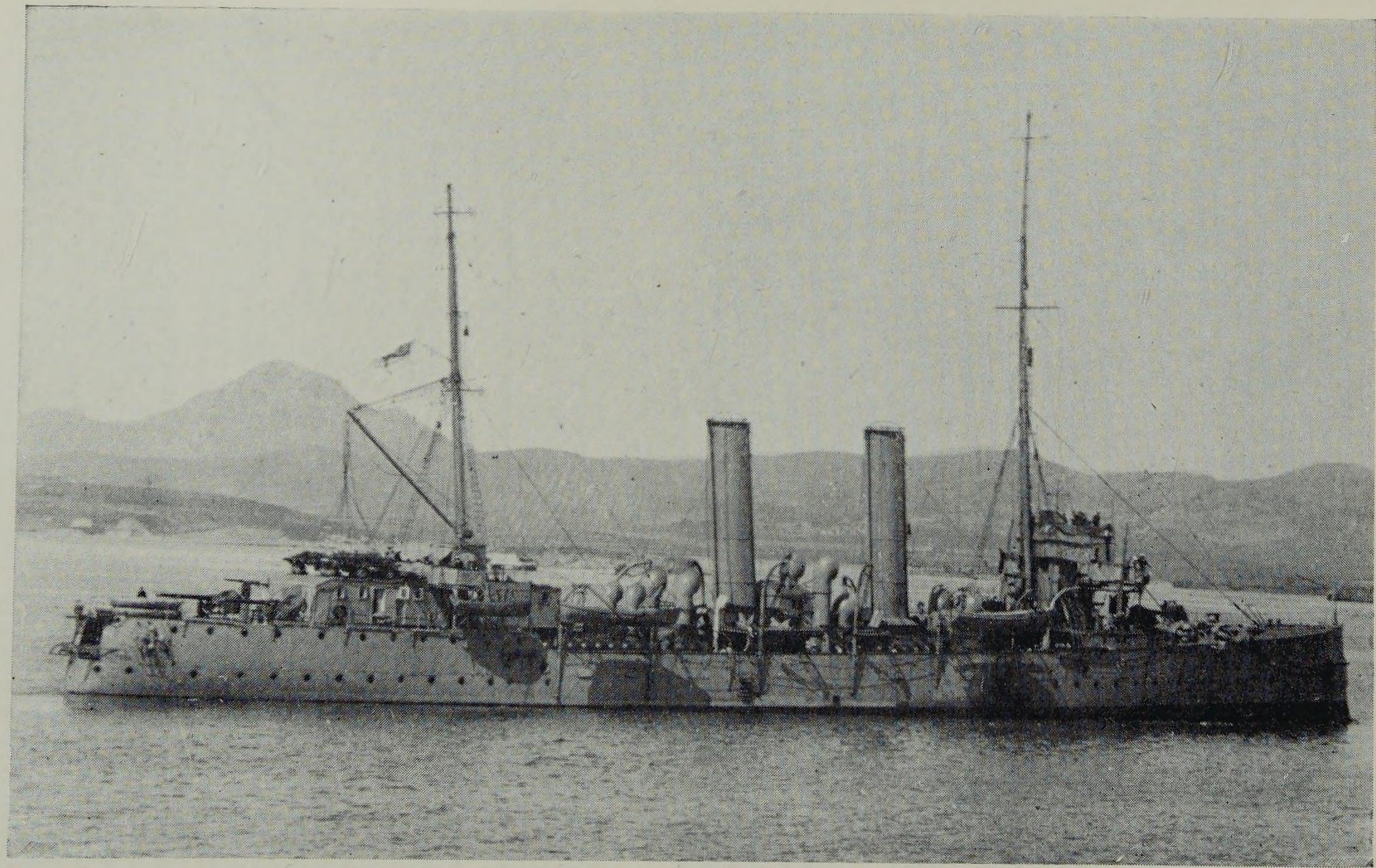
The seven Minelayers formed a squadron in 1914, which broke up as this work was taken over by destroyers and other ships. In 1915 *Andromache* and *Latona* went to the Mediterranean. In 1918 mines laid by *Latona* sunk the *Breslau* and damaged the *Goeben*. *Iphigenia* and *Intrepid* went to N. Russia in 1915-16, whilst *Naiad* became a Depot Ship on the Tyne. Five ships, as shown above, were sunk as blockships in April 1918.

PELORUS CLASS

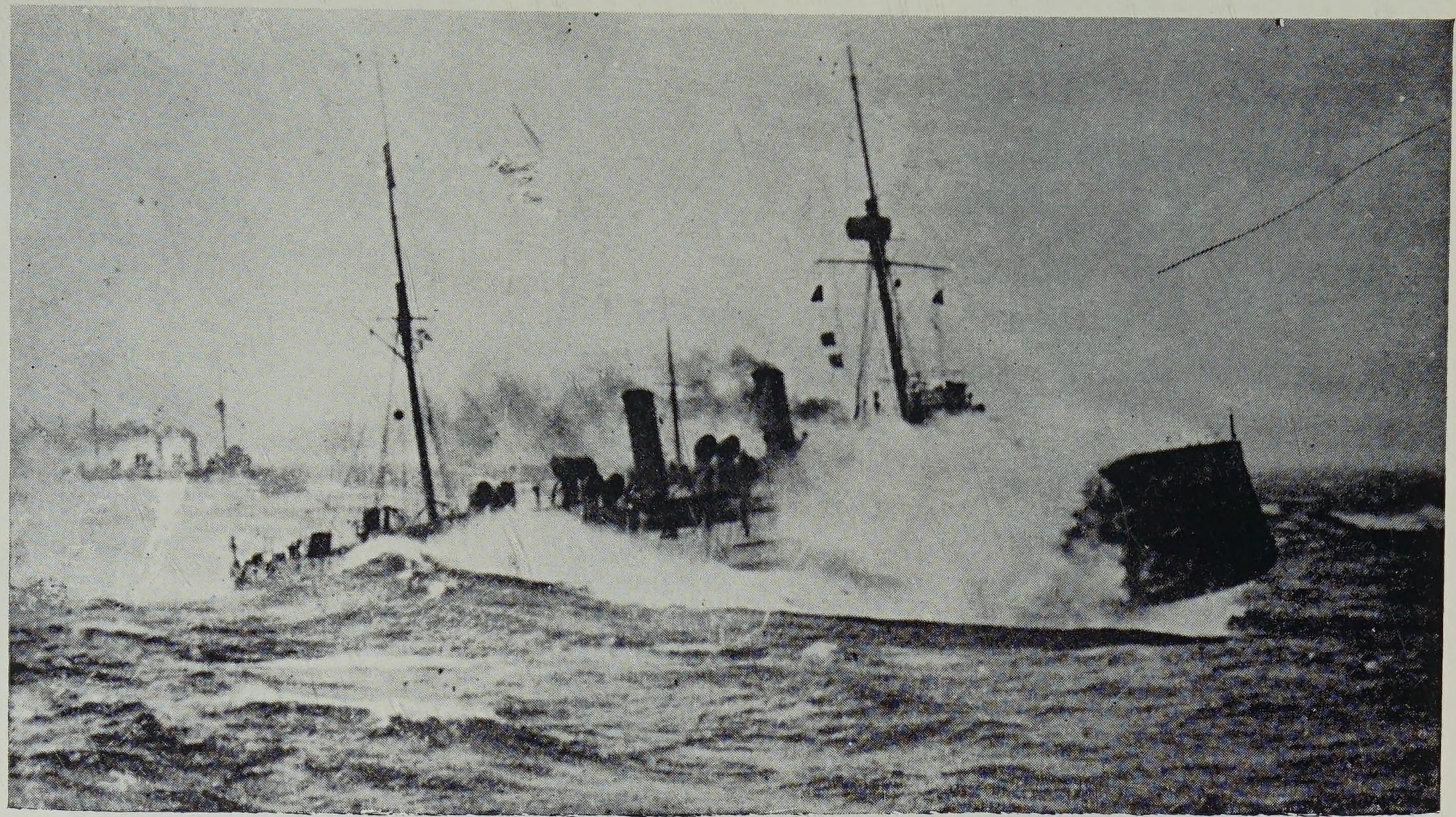
Length: 314 ft. *Beam:* 36½ ft. *Displacement:* 2,135—2,250 tons.
Triple expansion (3-cyl.). 2 screws. 7,000 h.p. 20.5 knots.
Guns: 8—4 in., also smaller. *Torpedo tubes:* 2—14 in.
Armour: Deck 2 in. *Complement:* 224.

Name	*Completed*	*Builder*		
Pegasus	1898	Pal.	1914	Sunk at Zanzibar.
Pelorus	1897	Sh. Dy.	1920	Sold.
Pioneer	1900	C.Dy.	1923	(circa) Discarded.
Proserpine	1898	Sh.Dy.	1919	Sold.
Psyche	1900	D.Dy.	1922	Sold in Austrailia.
Pyramus	1900	Pal.	1920	Discarded.

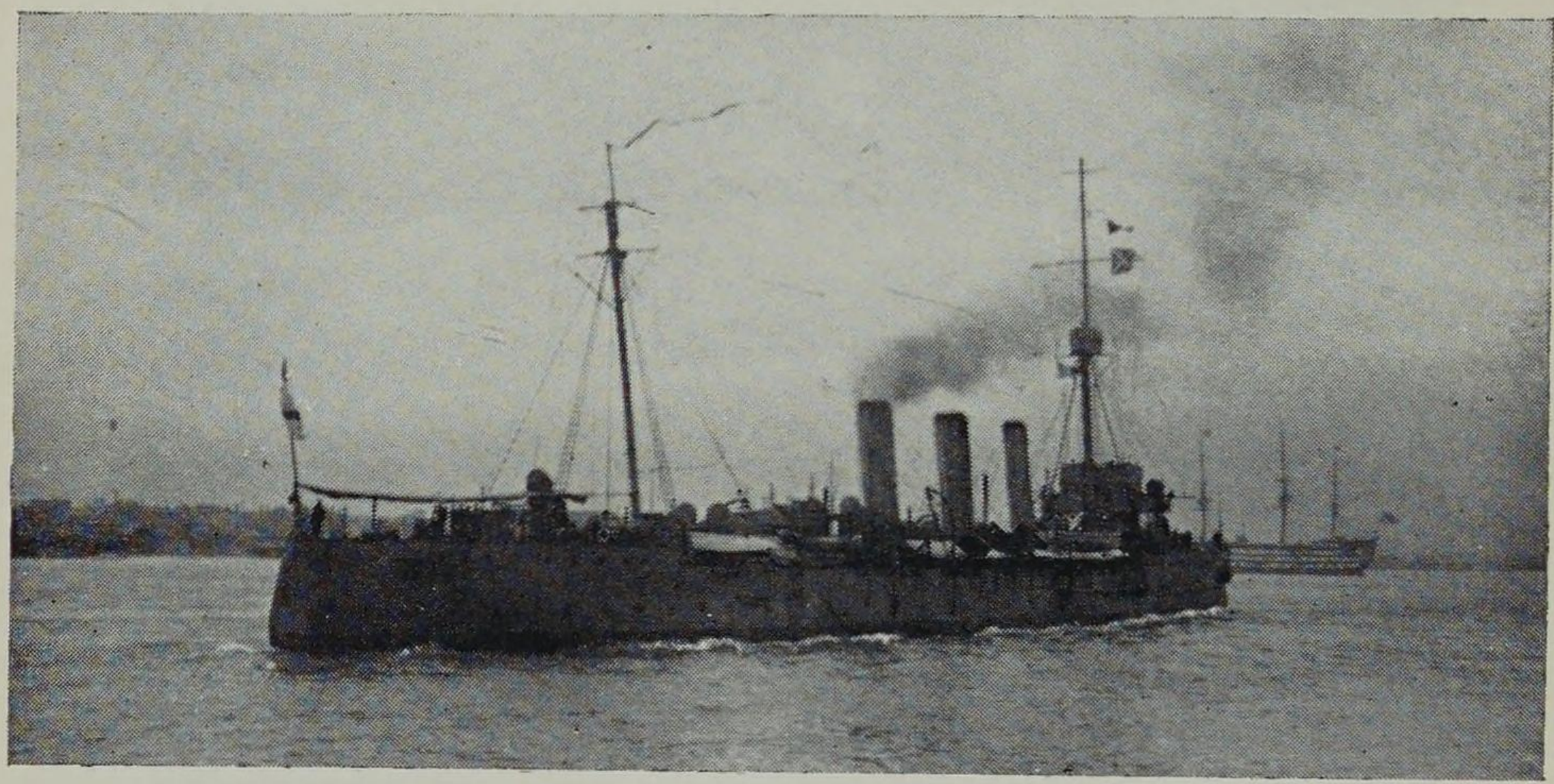
Sister ships: *Pandora, Perseus* and *Prometheus* sold 1913-14. *Pactolus* was Submarine Depot Ship at Ardrossan 1914-18. There was also *Philomel* of 2,575 tons, sole survivor of an earlier class.
Pegasus (Cape Squadron), was sunk by the *Koenigsberg* at Zanzibar in Sept. 1914. *Pelorus*, 1914 patrol off Ireland, 1915 patrols from Gibraltar, 1916 to Suda Bay, where she became Depot Ship. *Proserpine:* 1914 Channel Fleet, 1915 Dardanelles, later Indian Ocean. *Pioneer* (R.A.N.): 1914-16 E. Africa and Indian Ocean, returning to Australia. *Psyche, Pyramus* and *Philomel:* 1914 N.Z. Division.
Psyche: 1915 China, 1917 Australia. *Pyramus:* 1915 E. Africa and Indian Ocean, later Mudros becoming Depot Ship there. *Philomel:* 1915-17 Dardanelles, Red Sea and Persian Gulf, before returning to Australia.

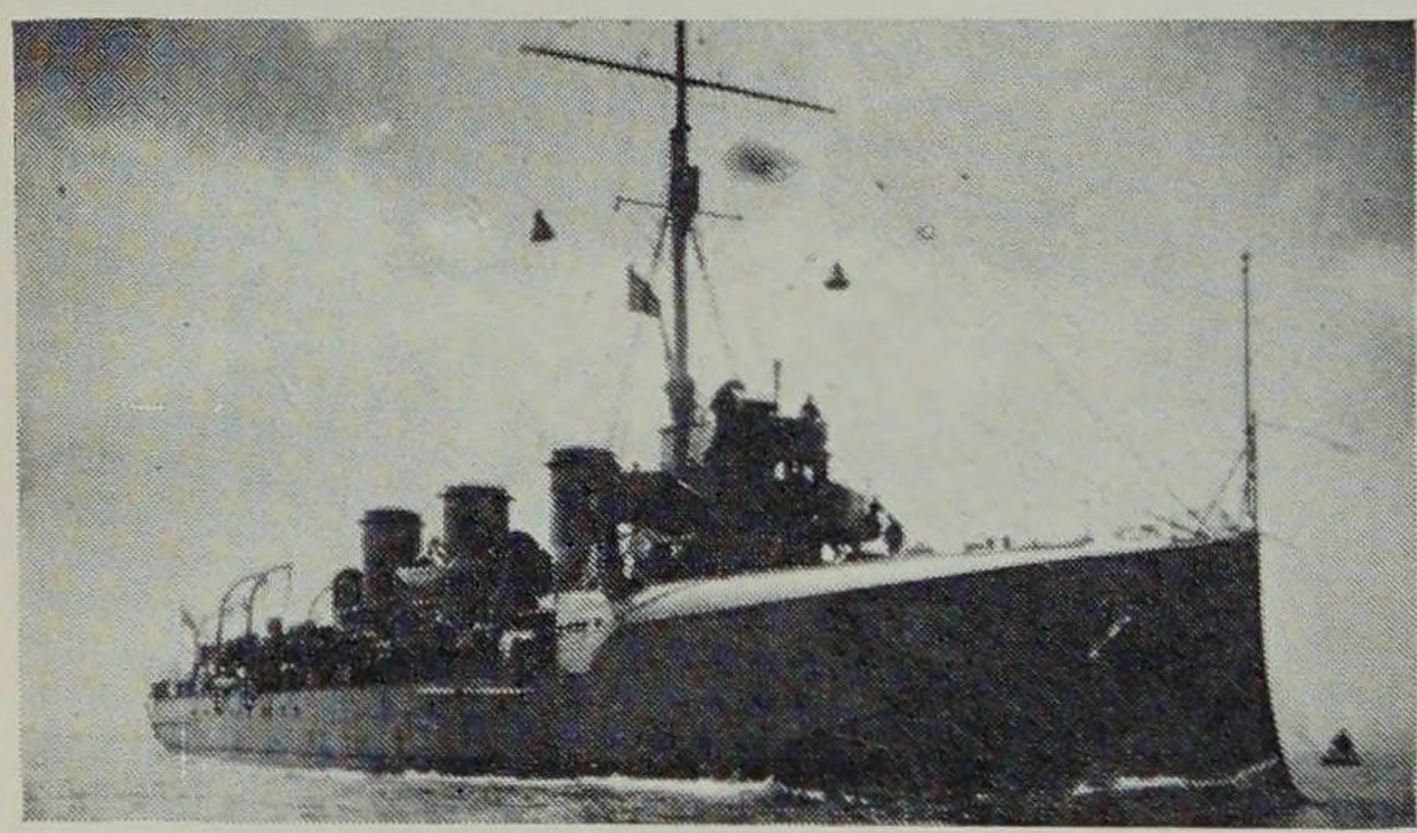


H.M.S. *Latona* as minelayer. She laid the mines which sank the *Breslau* and damaged the *Goeben* in January, 1918. [I.W.M.



H.M.S. *Pelorus* in heavy weather. [*Cozens*

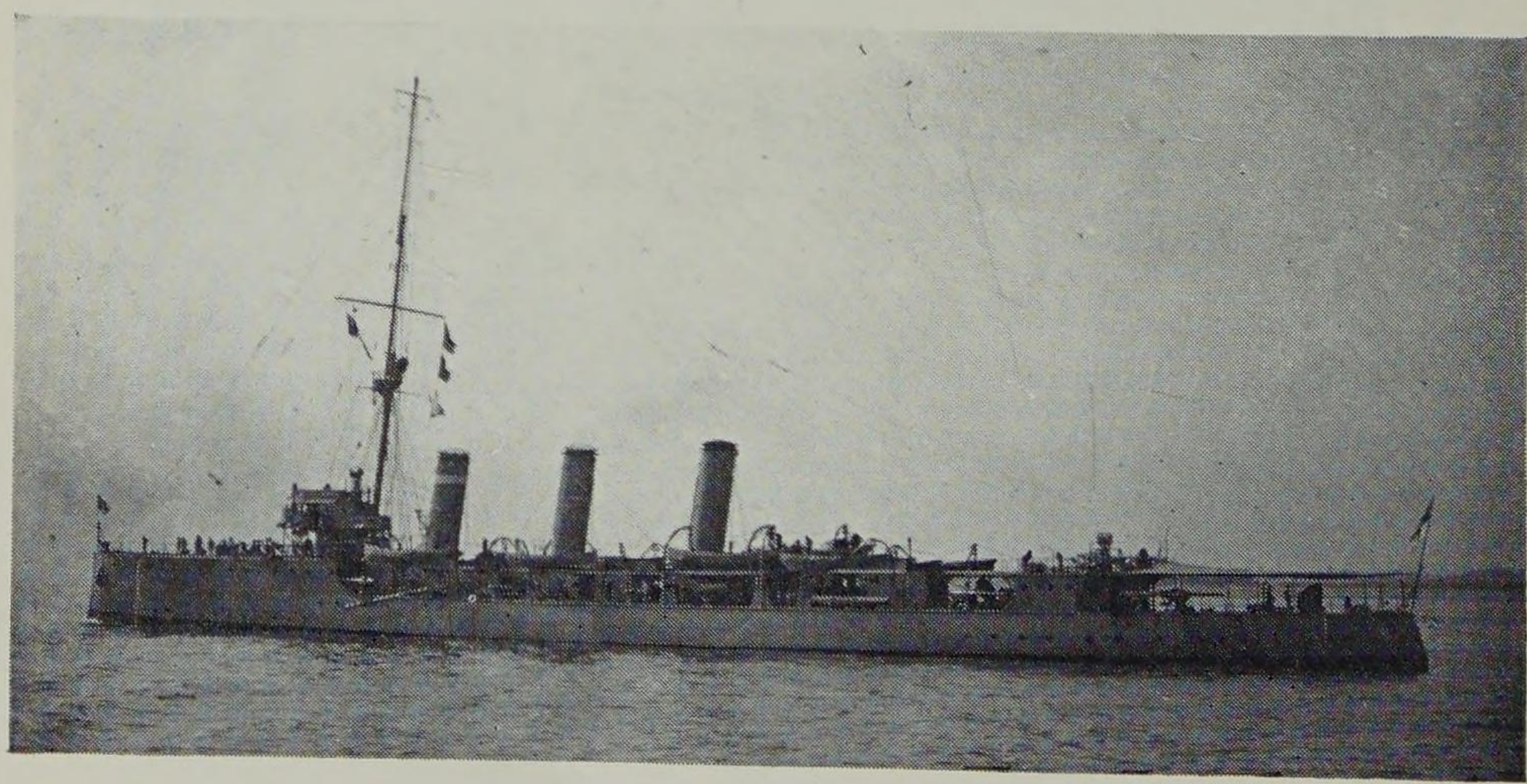




Top: H.M.S. *Topaze* with main topmast removed.

Left: H.M.S. *Skirmisher.*

Bottom: H.M.S. *Pathfinder* in 1914.



TOPAZE (GEM) CLASS

These ships form a link between the older cruisers and the modern light cruisers described later. *Amethyst* was our first cruiser to be built with turbines and also had cruising turbines.

Length: 374 ft. *Beam:* 40 ft. *Displacement:* 3,000 tons.
Triple expansion 2 screws. 9,800 h.p. 22 knots.
(*Amethyst*, turbines. 12,000 h.p. 23.5 knots).
Guns: 12—4 in., also smaller (*Amethyst*), later 2—6 in., 8—4 in.) *Torpedo tubes:* 2—18 in.
Armour: Deck 2 in. *Complement:* 296.

Name	Completed	Builder	
Amethyst	1904	AW.	1920 Sold.
Diamond	1905	CL.	1921 Sold.
Sapphire	1905	Pal.	1920 Sold.
Topaze	1904	CL.	1921 Sold.

Amethyst: 1914 attached 1st L.C.S., 1915 Med., 1916 S. America station. *Diamond:* 1914 Channel Fleet, 1915 Rosyth, 1918 Med. *Sapphire* and *Topaze:* 1914 Channel Fleet, 1915 Med., 1916 Indian Ocean, Red Sea and Persian Gulf.

SCOUTS

With the " River " class of 1904-5, Destroyers had become sea-going ships capable of escorting the fleet at sea. To work with them a new type of fast light cruiser, termed " Scout ", was built. Both " Rivers " and " Scouts " had a sea speed of 25 knots.

Distinguishing features of the " Scouts " were:—

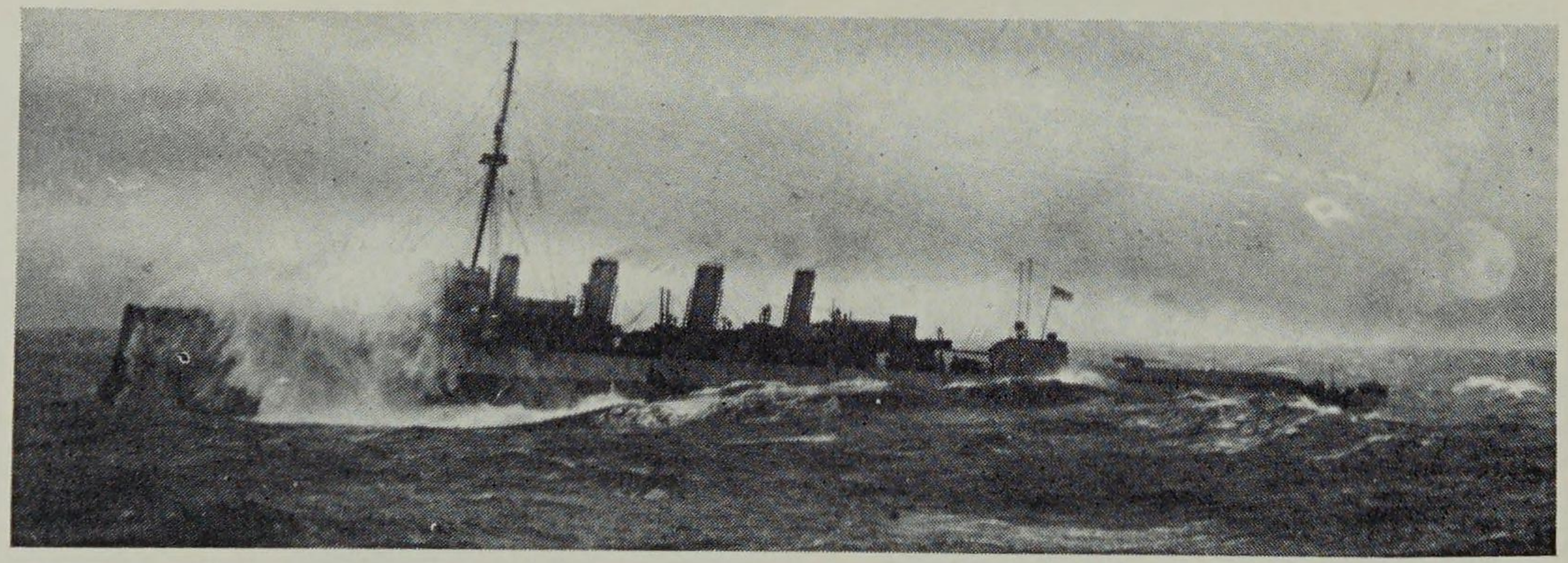
Class	*Funnels*	*Bows*	*Other features*
Sentinel	3 short.	Ram.	Turtle-back forecastle.
Forward	3 medium	,,	Raised poop.
Pathfinder	3 tall	,,	
Adventure	4	Cut-away	Cowls prominent.
Boadicea	,,	Ram	No cowls.
Active	,,	Cut-away	,, ,,

SENTINEL CLASS

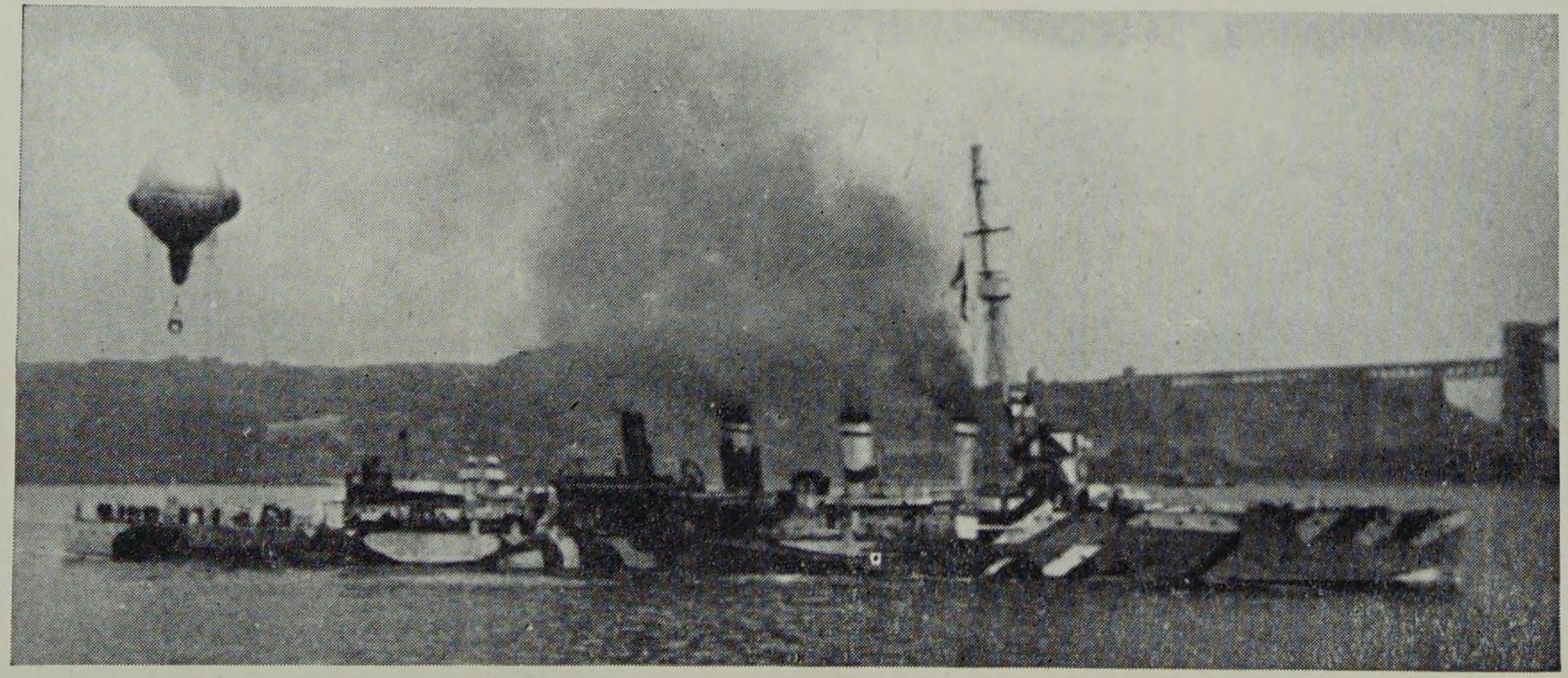
Length: 360 ft. (p). *Beam:* 40 ft. *Displacement:* 2,900 tons.
Triple expansion (4-cyl.). 2 screws. 17,500 h.p. 25 knots.
Guns: 9—4 in., 1—3 in. A.A. *Torpedo tubes:* 2—14 in.
Armour: Deck $\frac{5}{8}$ to $1\frac{1}{2}$ in. *Complement:* 296.

Name	Completed	Builder	
Sentinel	1905	V.	1922 Sold.
Skirmisher	1905	V.	1920 Sold.

Left: H.M.S. *Blanche* in heavy weather.
[*H.S. & R.*



Below: H.M.S. *Fearless* with kite balloon, dazzle-painted in black, white, pink and pale green. [*N.P.C.*



FORWARD CLASS

As *Sentinel* but length 365 ft. (p). *Beam:* 39 ft. and 2 in. armour belt.

Name	Completed	Builder	
Forward	1905	F.	1921 Sold.
Foresight	1905	F.	1920 Sold.

PATHFINDER CLASS

As *Forward* but length 370 ft. (p) and 2,940 tons displacement.

Name	Completed	Builder	
Pathfinder	1905	CL.	1914 Torpedoed.
Patrol	1905	CL.	1920 Sold.

ADVENTURE CLASS

Length: 374 ft. (p). *Beam:* 38 ft. *Displacement:* 2,670 tons.
Triple expansion (6-cyl.). 2 screws. 16,000 h.p. 25.5 knots.
Guns: 9—4 in., 1—3 in. A.A. *Torpedo tubes:* 2—14 in.
Armour: Deck 2 in. *Complement:* 268.

Name	Completed	Builder	
Adventure	1905	AW.	1920 Sold.
Attentive	1905	AW.	1920 Sold.

BOADICEA CLASS

Length: 405¾ ft. *Beam:* 41 ft. *Displacement:* 3,300—3,400 tons.
Turbines: 2 screws. 18,000 h.p. 26 knots.
Guns: 6 to 10—4 in., 1—3 in. or 4 in. A.A. *Torpedo tubes:* 2—18 in. or 21 in.
Armour: Nil. *Complement:* 270—330.

Name	Completed	Builder	
Boadicea	1909	Pem.Dy.	1926 Sold.
Bellona	1910	Pem.Dy.	1921 Sold.
Blanche	1910	Pem.Dy.	1921 Sold.
Blonde	1911	Pem.Dy.	1920 Sold.

ACTIVE CLASS

As *Boadicea* but 3,440 tons, 10—4 in. guns and 2—21 in. torpedo tubes.

Name	Completed	Builder		
Active	1912	Pem.Dy.	1920	Sold.
Amphion	1912	Pem.Dy.	1914	Mined.
Fearless	1913	Pem.Dy.	1921	Sold.

Boadicea, *Bellona*, *Blanche* and *Blonde* were each attached to a Grand Fleet Battle Squadron throughout the War and all except *Blonde* were at Jutland. In 1914 the others were with their Destroyer Flotillas:—*Fearless* (1st), *Active* (2nd), *Amphion* (3rd), all of the Grand Fleet. *Adventure*, *Attentive* and *Foresight* (6th Dover Patrol), *Skirmisher* (7th Humber Patrol), *Pathfinder* and *Sentinel* (8th Tyne Patrol), *Forward* and *Patrol* (9th Forth Patrol). *Active* and *Fearless* were at Jutland. *Amphion* was mined off the Thames Estuary in Aug. 1914 and *Pathfinder* was torpedoed off St. Abb's Head in Sept. 1914. In 1915 faster light cruisers came into service replacing *Sentinel*, *Skirmisher*, *Forward* and *Foresight* which were transferred to the Med. Except the four " B's " most of them were dazzle-painted in the latter part of the War. In 1918 *Active* and *Adventure* ended up on Atlantic patrols down to Gibraltar. *Attentive* went to White Sea and *Fearless* to the 12th Submarine Flotilla (fast ' K ' class). Adventure flagship at Queenstown, (Cobh) 1915-17.

TOWNS

These ships were much larger than the " Scouts ", capable of long range cruising as well as fleet duties. For some years the Germans had been building such useful dual-purpose light cruisers, which were named after German towns. All the British ships had four funnels but could be distinguished as follows:—

Class	*Bows*	*Stern*	*Other features*
Bristol	Ram.	Cruiser	Low freeboard.
Weymouth	,,	,,	High freeboard.
Chatham	Cut-away	Raked	1 gun forward of bridge.
Birmingham	,,	,,	2 guns ,, ,, ,,
Birkenhead	,,	,,	Pole in place of mainmast.

Wartime alterations. Most noticeable were the fitting of tripod foremasts and greatly heightened searchlight towers aft. Some of them temporarily lost their main topmasts and a few, including *Southampton* and *Melbourne*, were dazzle-painted for a time. *Yarmouth* was the first cruiser to be fitted to carry an aircraft, and it was her machine which destroyed the Zeppelin L23 over the North Sea in August 1917.

BRISTOL CLASS

Length: 453 ft. *Beam:* 47 ft. *Displacement:* 4,800 tons.
Turbines: 4 screws (*Bristol* 2). 22,500 h.p. 26 knots.
Guns: 2—6 in., 10—4 in., 1—3 in. A.A. *Torpedo tubes:* 2—18 in.
Armour: Deck $\frac{3}{4}$ to 2 in. *Complement:* 450—500.

BRISTOL CLASS

Name	Completed	Builder	
Bristol	1911	C.	1921 Sold.
Glasgow	1911	F.	1926 Sold.
Gloucester	1911	WB.	1921 Sold.
Liverpool	1910	V.	1921 Sold.
Newcastle	1910	AW.	1921 Sold.

Bristol: 1914 W. Indies, Falklands, 1915 Med., 1917 Adriatic, 1918 S. Atlantic. *Glasgow:* 1914 S. America, Coronel, Falklands, 1918 Med. (8th L.C.S.). *Gloucester:* 1914 Grand Fleet, 1916 Jutland, Med., 1917 Adriatic (8th L.C.S.). *Liverpool:* 1914, Grand Fleet, Heligoland, 1915 (end) Med. finishing at Constantinople 1918. *Newcastle:* 1914 China, 1915 Pacific, 1917 Med. and Indian Ocean, 1918 S. Atlantic.

WEYMOUTH CLASS

Length: 453 ft. *Beam:* 48½ ft. *Displacement:* 5,250 tons.
Turbines: 4 screws (*Yarmouth* 2). 23,500 h.p. 25.5 knots.
Guns: 8—6 in., 1—3 in. A.A. *Torpedo tubes:* 2—21 in.
Armour: Deck ¾ to 2 in. *Complement:* 475—540.

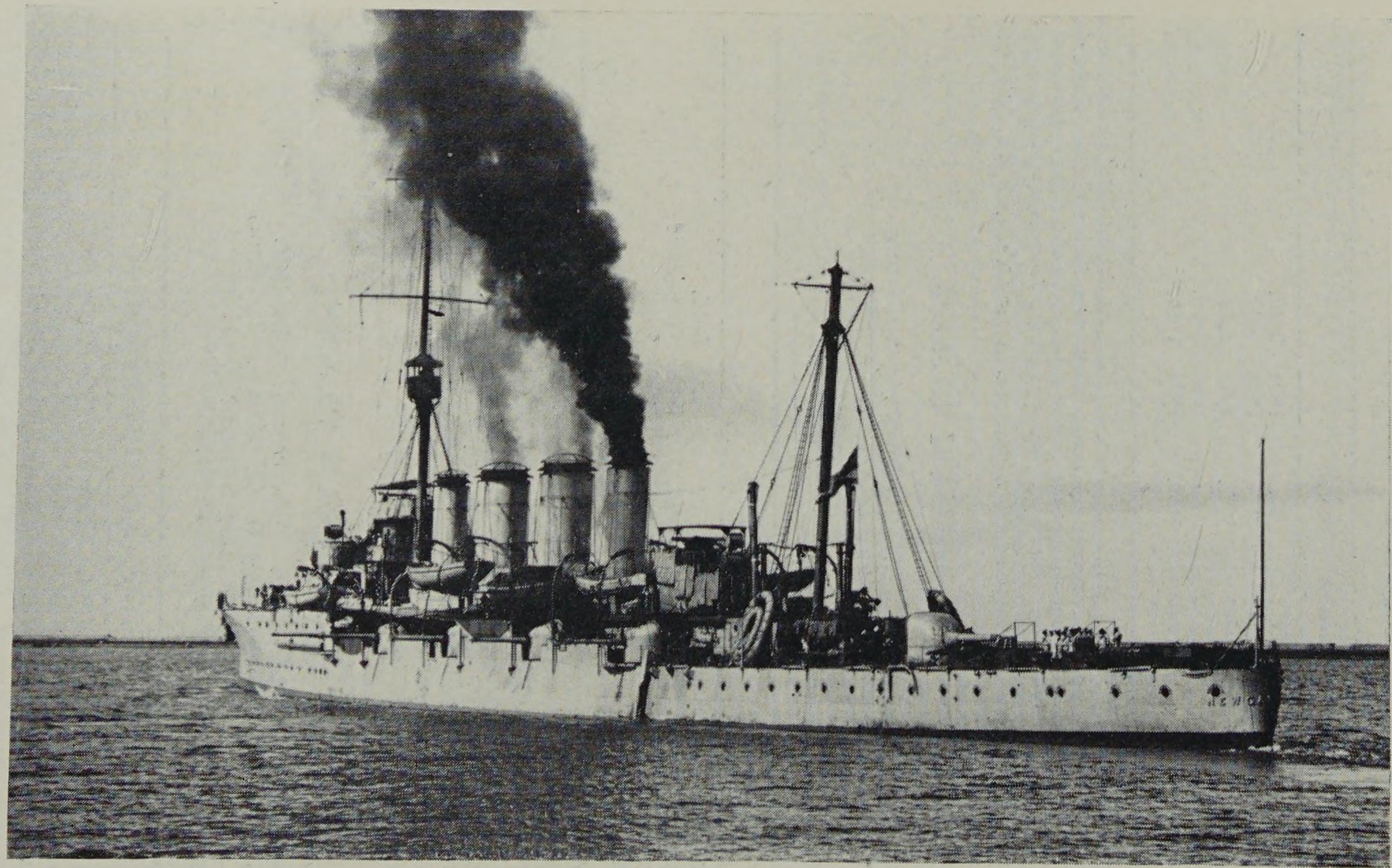
Name	Completed	Builder	
Dartmouth	1911	V.	1930 Sold.
Falmouth	1911	WB.	1916 Torpedoed.
Weymouth	1911	AW.	1928 Sold
Yarmouth	1912	L. & G.	1929 Sold.

Dartmouth: 1914 Indian Ocean and S. Atlantic, 1915 Dardanelles, 1916 Adriatic, actions with Austrian fleet, 1917 torpedoed but reached port. *Falmouth:* 1914 Grand Fleet, Heligoland, 1916 Jutland, Sept. 1916 torpedoed (four times) by U66 and U63 in North Sea. *Weymouth:* 1914 Med., 1915 roundup of *Koenigsberg* (E. Africa), 1916 Med., 1917 Adriatic (8th L.C.S.). *Yarmouth:* 1914 China, 1915 Grand Fleet, 1916 Jutland, 1918 2nd L.C.S. The three survivors did post-war service on overseas stations.

CHATHAM CLASS

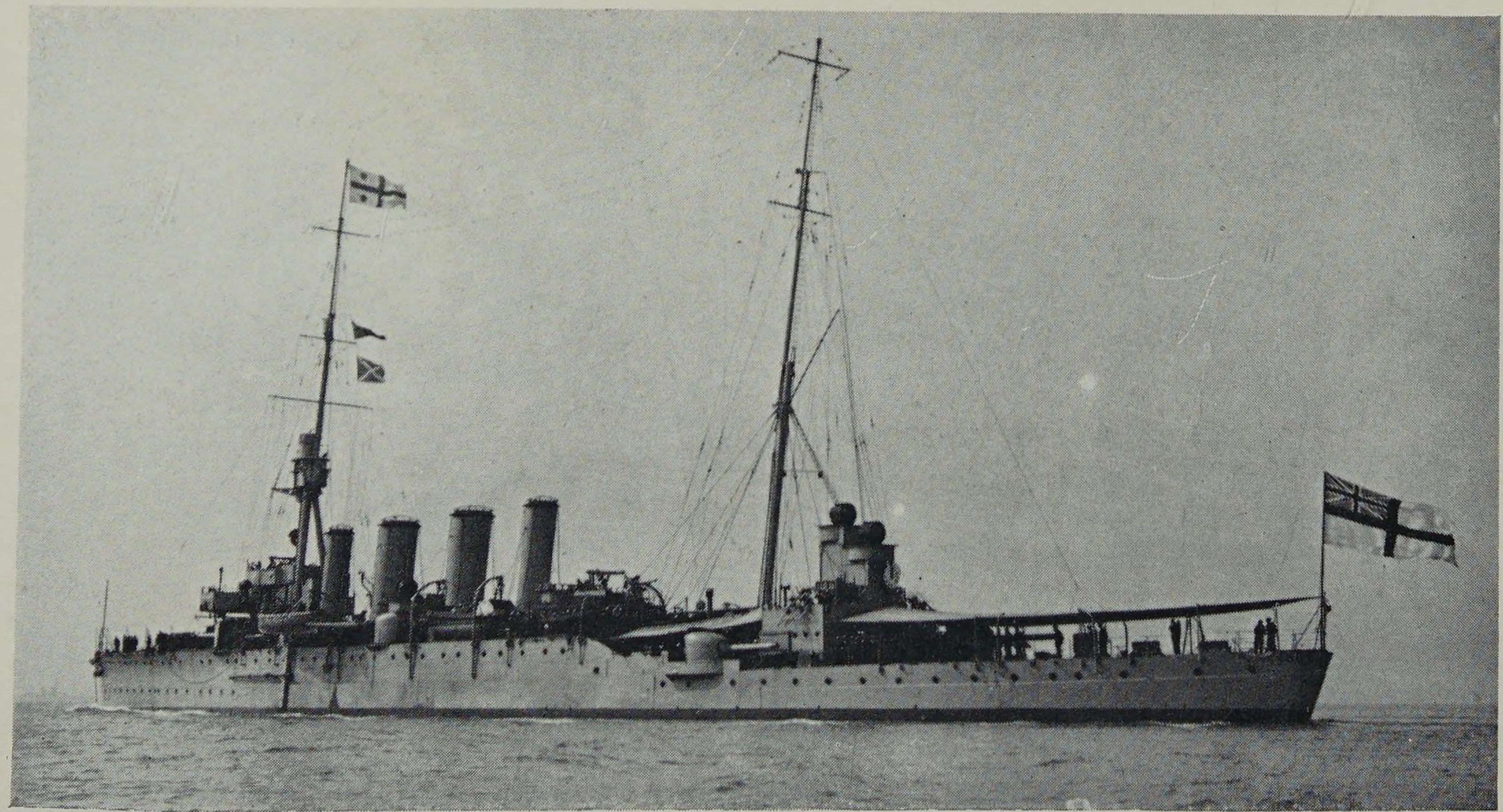
Length: 458 ft. *Beam:* 48¾ ft. *Displacement:* 5,400 tons.
Turbines: 4 screws (*Southampton* 2). 25,000 h.p. 25.5 knots.
Guns: 8—6 in., 1—3 in. A.A. *Torpedo tubes:* 2—21 in.
Armour: Belt 3 in. *Complement:* 475—540.

Name	Completed	Builder	
Chatham	1912	C.Dy.	1926 Sold.
Dublin	1912	WB.	1926 Sold.
Southampton	1912	C.	1926 Sold.

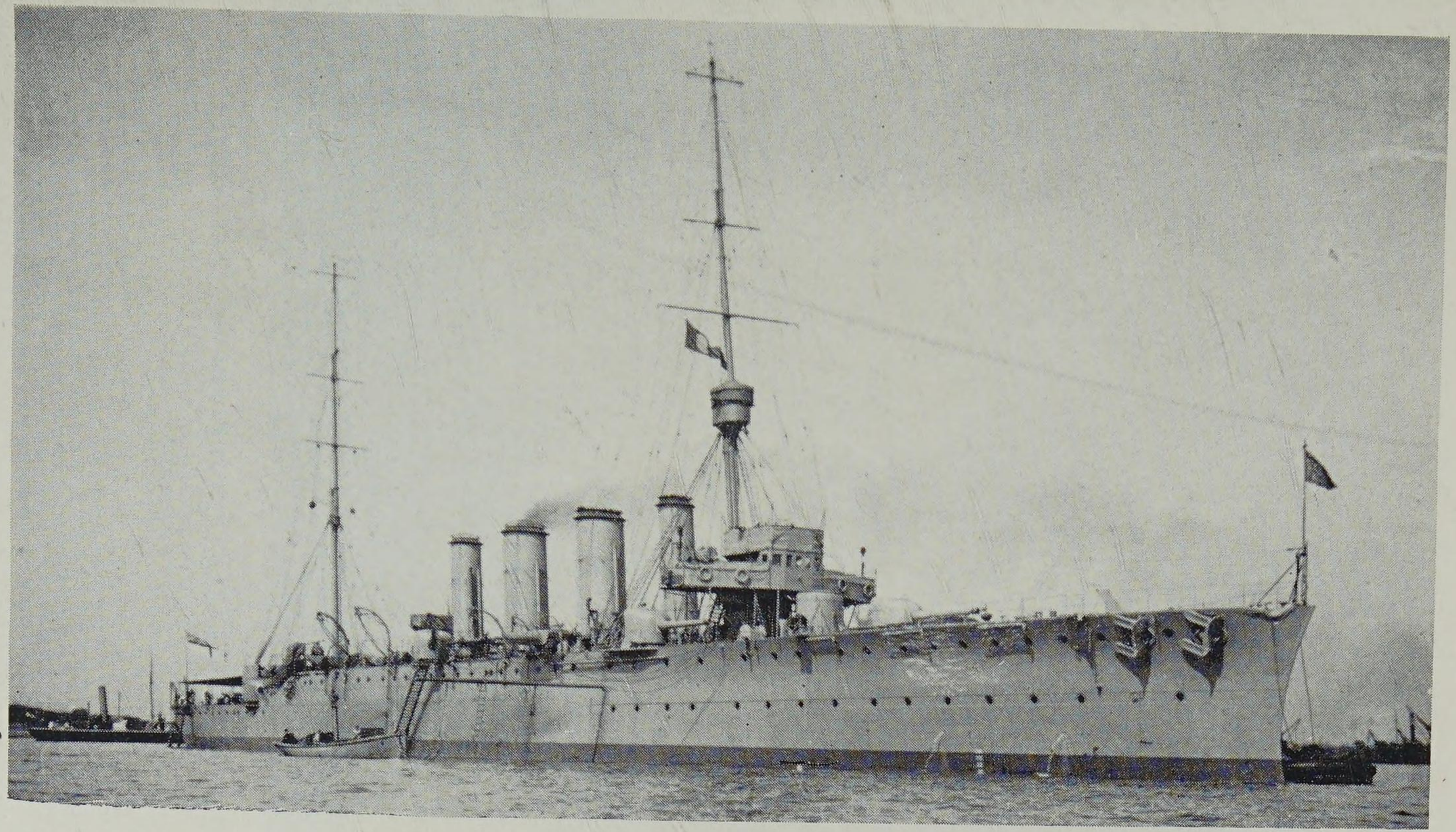


H.M.S. *Newcastle* in 1918, with main topmast removed. [I.W.M.

H.M.S. *Weymouth*. Note aircraft platform forward. [I.W.M.

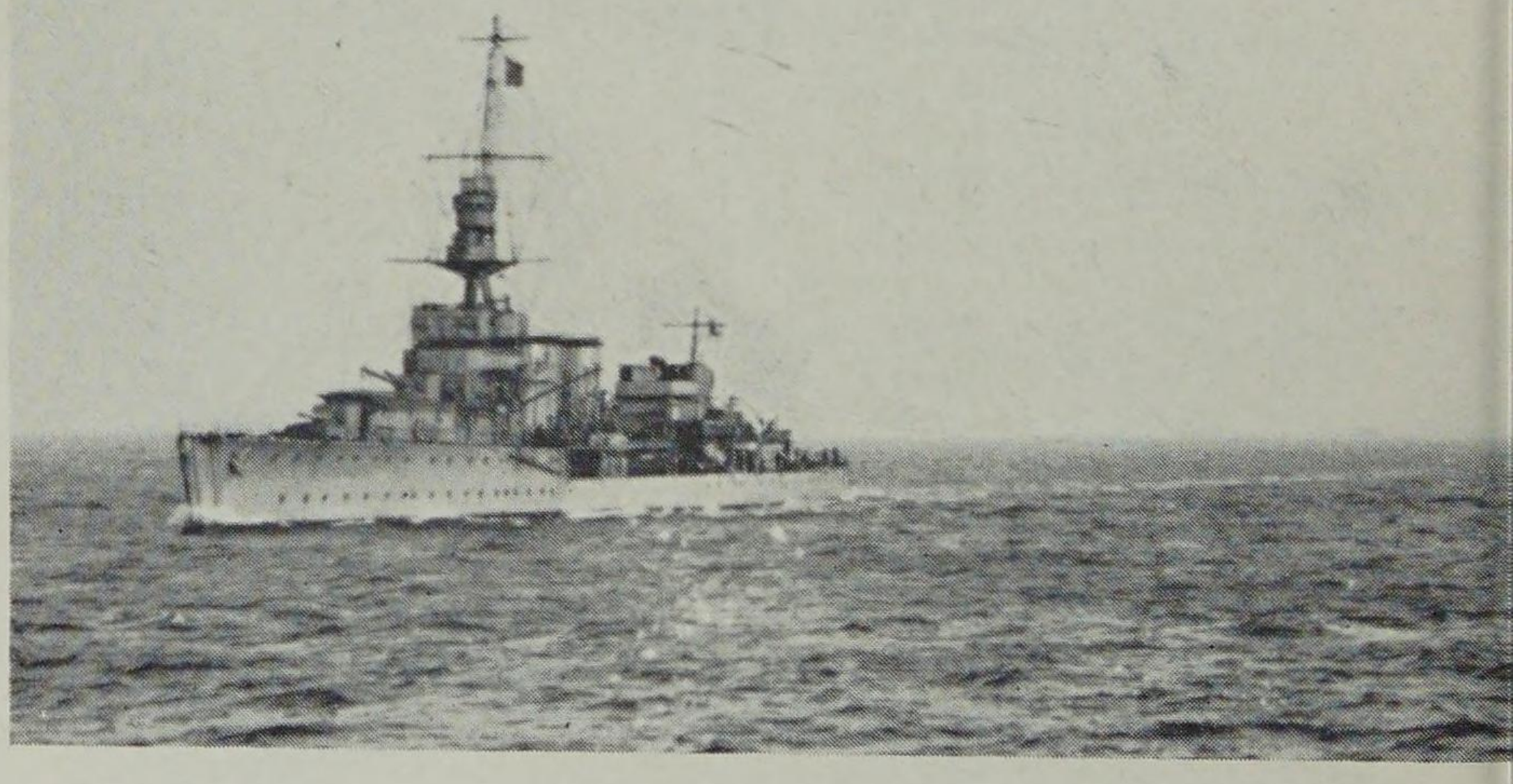


H.M.S. *Southampton* after the war. [*Cozens*

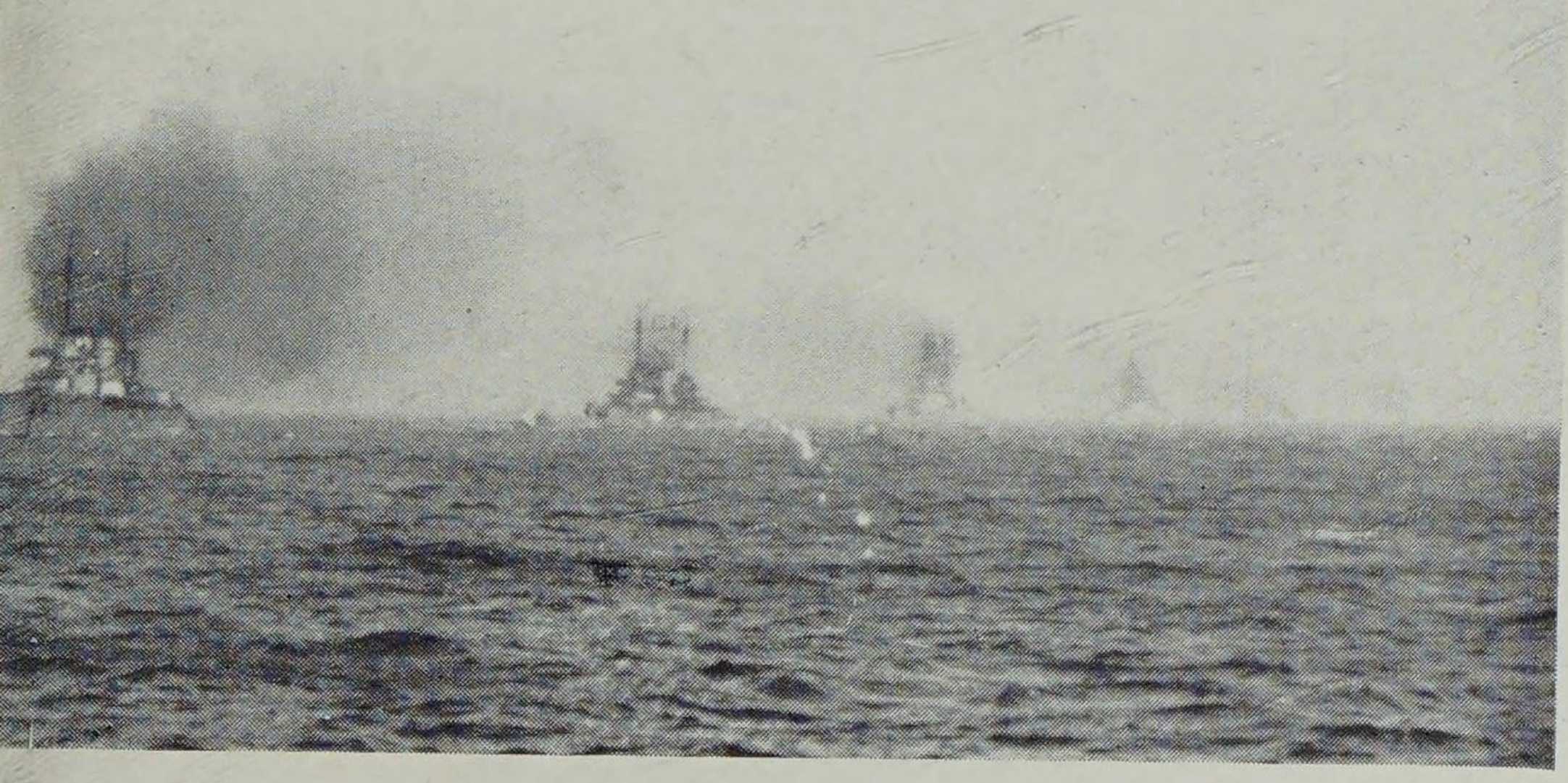


H.M.A.S. *Sydney* in 1914.

[*Cozens*



H.M.S. *Cardiff* leads the German High Seas fleet to surrender.



[I.W.M.

Australian Ships.				
Melbourne	1913	CL.	1928	Sold.
Sydney	1913	L. & G.	1929	Sold.
Brisbane	1915	Co.	1934	Discarded.

Sister Ship: *Adelaide*, completed 1922, slightly larger and differed in detail. *Chatham:* 1914 Med. and Indian Ocean, 1915 Dardanelles, 1916 Grand Fleet, 1920 R.N.Z.N. *Dublin:* 1914 Med., 1915 Dardanelles, 1916 Grand Fleet, Jutland. *Southampton:* 1914 Grand Fleet, Heligoland, 1915 Dogger Bank, 1916 Jutland. After the war these three ships served on foreign stations. *Melbourne: Sydney* and *Brisbane*, Australian Fleet, *Sydney* sinking the *Emden* in 1914. *Melbourne* and *Sydney*, 1915 N. America and W. Indies squadron, 1916 Grand Fleet, 1919 returned to Australia.

BIRMINGHAM CLASS

Length: 450 ft. *Beam:* 50 ft. *Displacement:* 5,440 tons.
Turbines: 4 screws. 25,000 h.p. 25.5 knots.
Guns: 9—6 in., 1—3 in. A.A. *Torpedo tubes:* 2—21 in.
Armour: Belt 3 in. *Complement:* 450—540.

Name	*Completed*	*Builder*		
Birmingham	1914	AW.	1931	Sold.
Lowestoft	1914	C.Dy.	1931	Sold.
Nottingham	1914	Pem.Dy.	1916	Torpedoed.

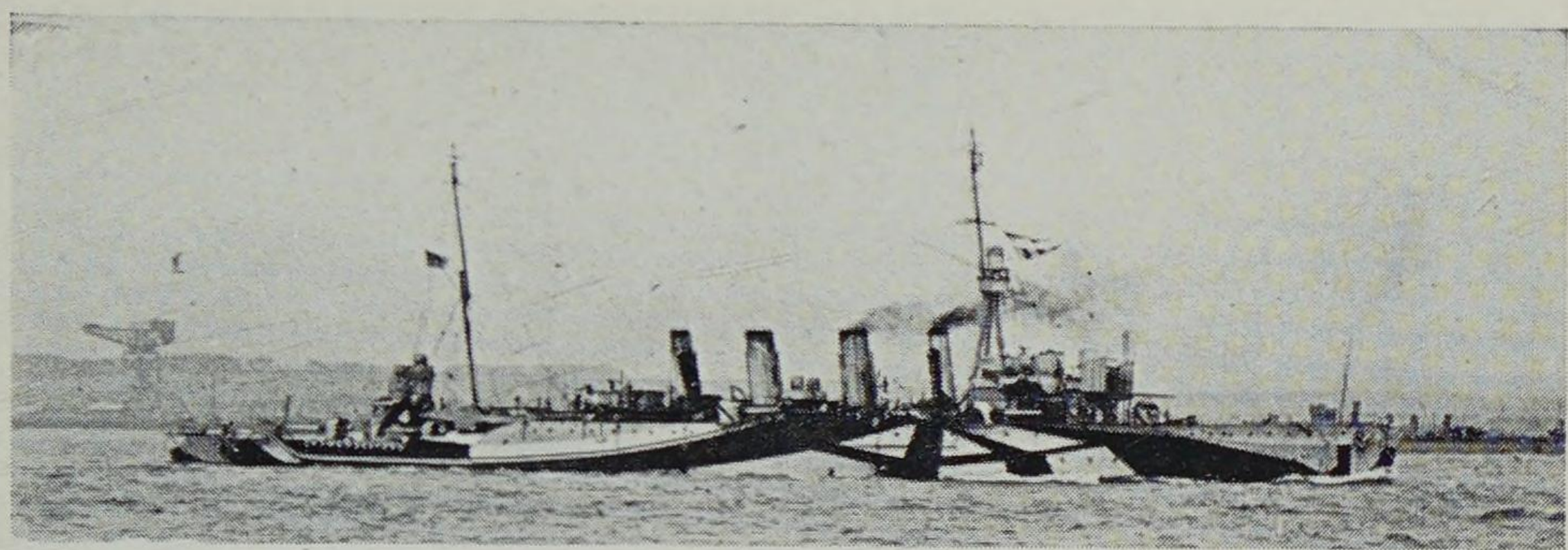
In 1914 all three in Grand Fleet. *Birmingham:* 9th Aug. 1914 sank U15 (first U-boat to be sunk), 1914 Heligoland, 1915 Dogger Bank, 1916 Jutland, Flagship 2nd L.C.S. *Lowestoft:* 1914 Heligoland, 1916 Med., 1917 Adriatic (8th L.C.S.). *Nottingham* was at Jutland, but was shortly afterwards sunk by U52 in the North Sea. The first two ships served on foreign stations after the War.

BIRKENHEAD AND CHESTER

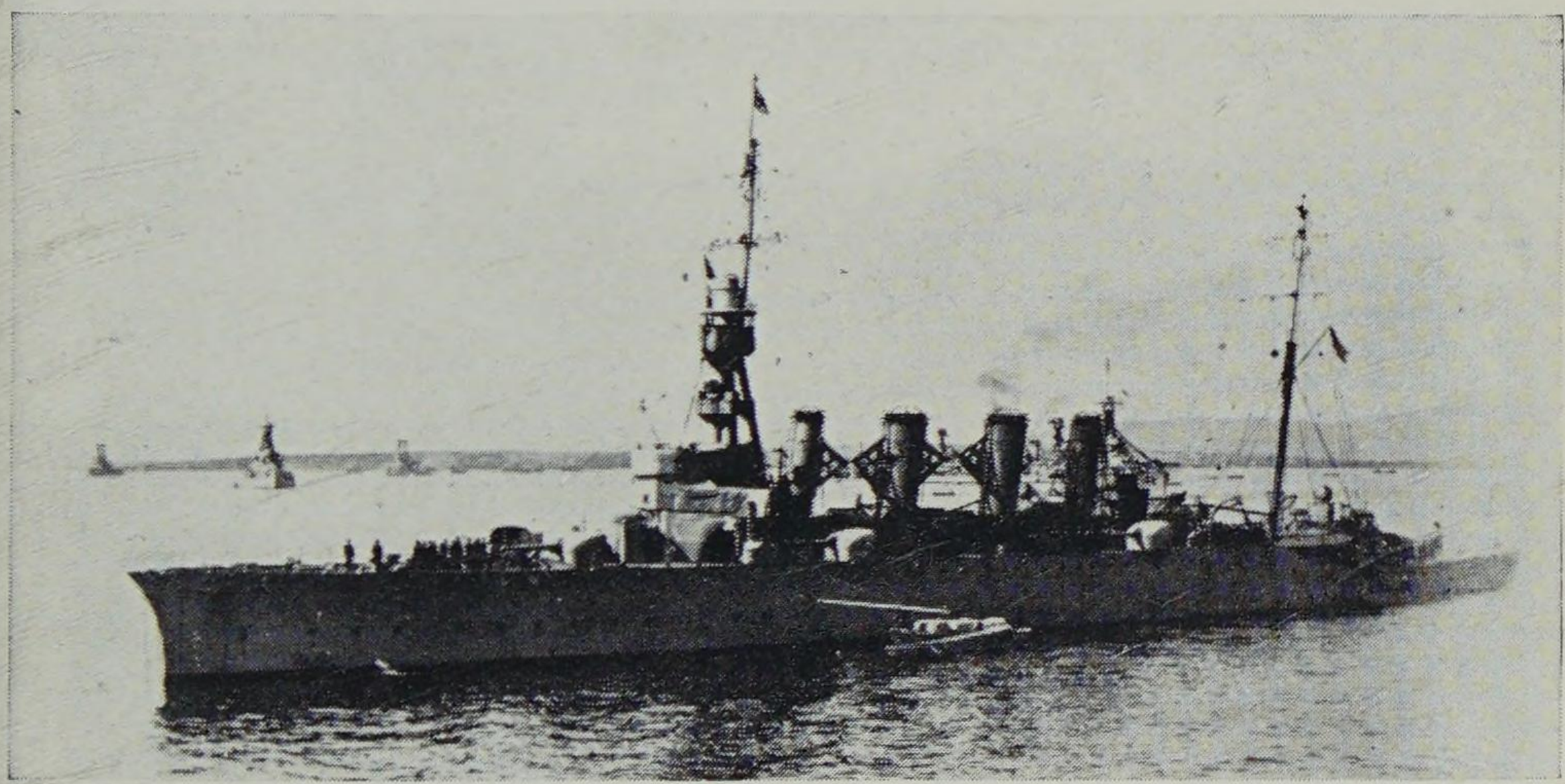
Length: 446 ft. (*Chester* 456½ ft.). *Beam:* 50 ft. *Displacement:* 5,200 tons.
Turbines: 4 screws. 25,000 h.p. (*Chester* 31,000). 25 knots (*Chester* 26.5).
Guns: 10—5.5 in., 1—3 in. A.A. *Torpedo tubes:* 2—21 in.
Armour: Belt 3 in.. *Complement:* 450—550.

Name	*Completed*	*Builder*		
Birkenhead	1915	CL.	1921	Sold.
Chester	1916	CL.	1921	Sold.

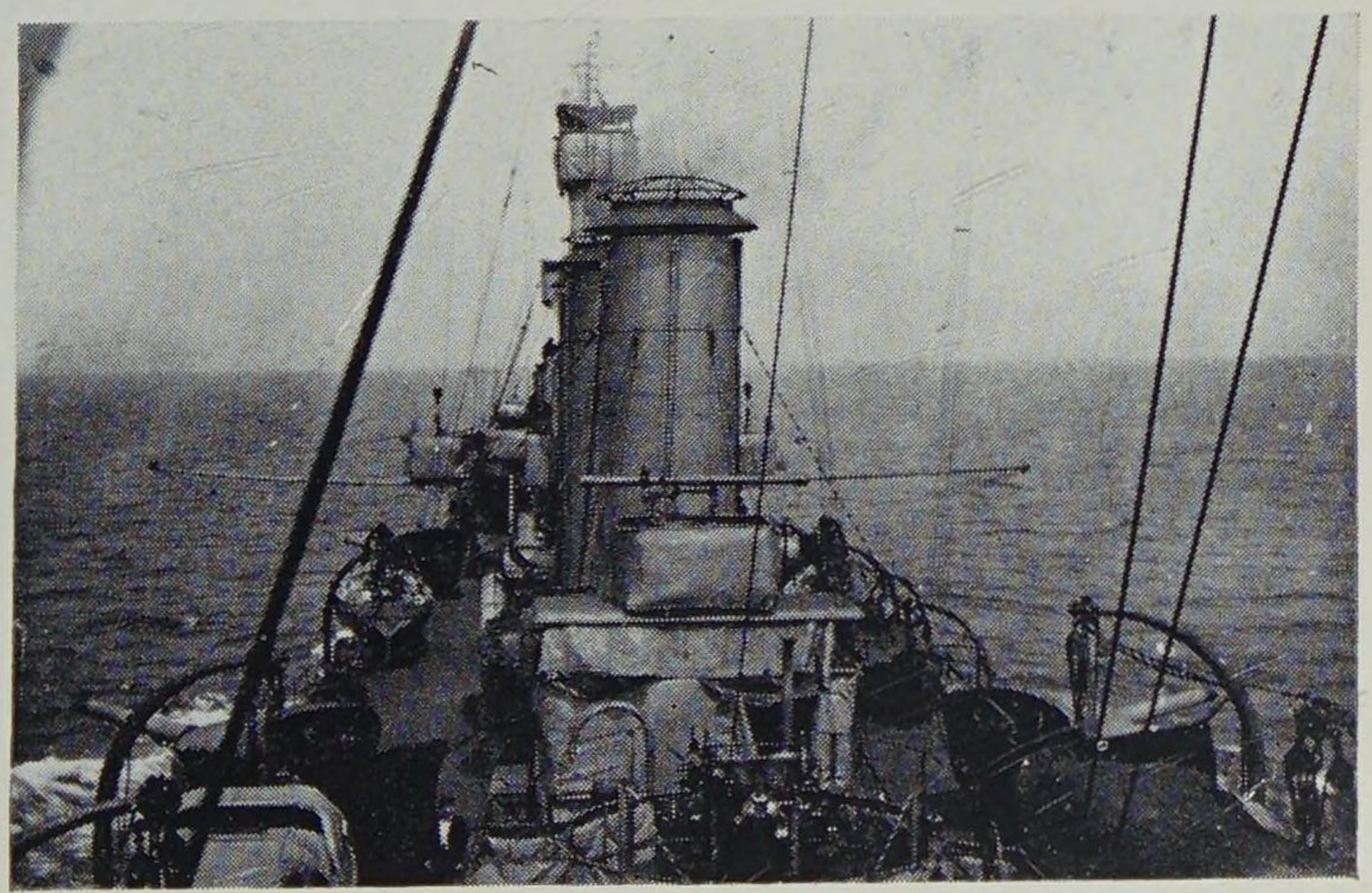
Originally ordered for Greece, both ships were in the 3rd L.C.S. (Battle Cruiser Force) throughout. Both were at Jutland where *Chester* was badly damaged and in which Boy Cornwell's gallantry won a posthumous V.C.
Note. The so-called " Improved Birmingham " class were much larger ships of different design. Displacing 9,750 tons, they were armed with seven rather awkward 7.5 in. guns in separate mountings. Only one of them, *Vindictive*, (ex *Cavendish*), was completed during the War as a temporary Aircraft Carrier. Their existence was, however, responsible for the Washington Treaty's rather artificial cruiser limitation of 10,000 tons and 8 in. guns.



H.M.A.S. *Melbourne*, dazzle-painted. [*I.W.M.*



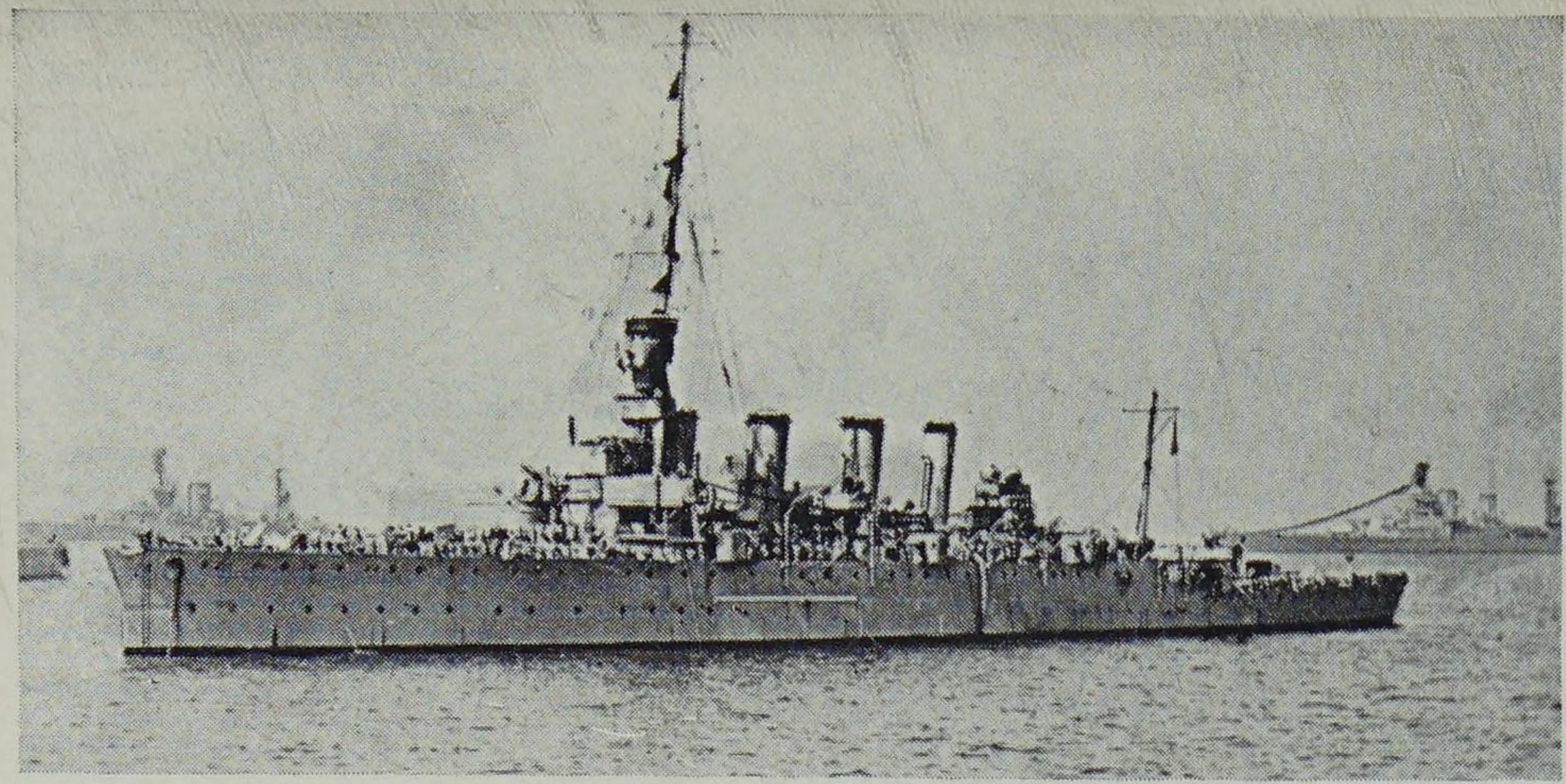
(Above): H.M.S. *Birmingham* in 1916. Note baffles between funnels intended to confuse enemy rangefinders.

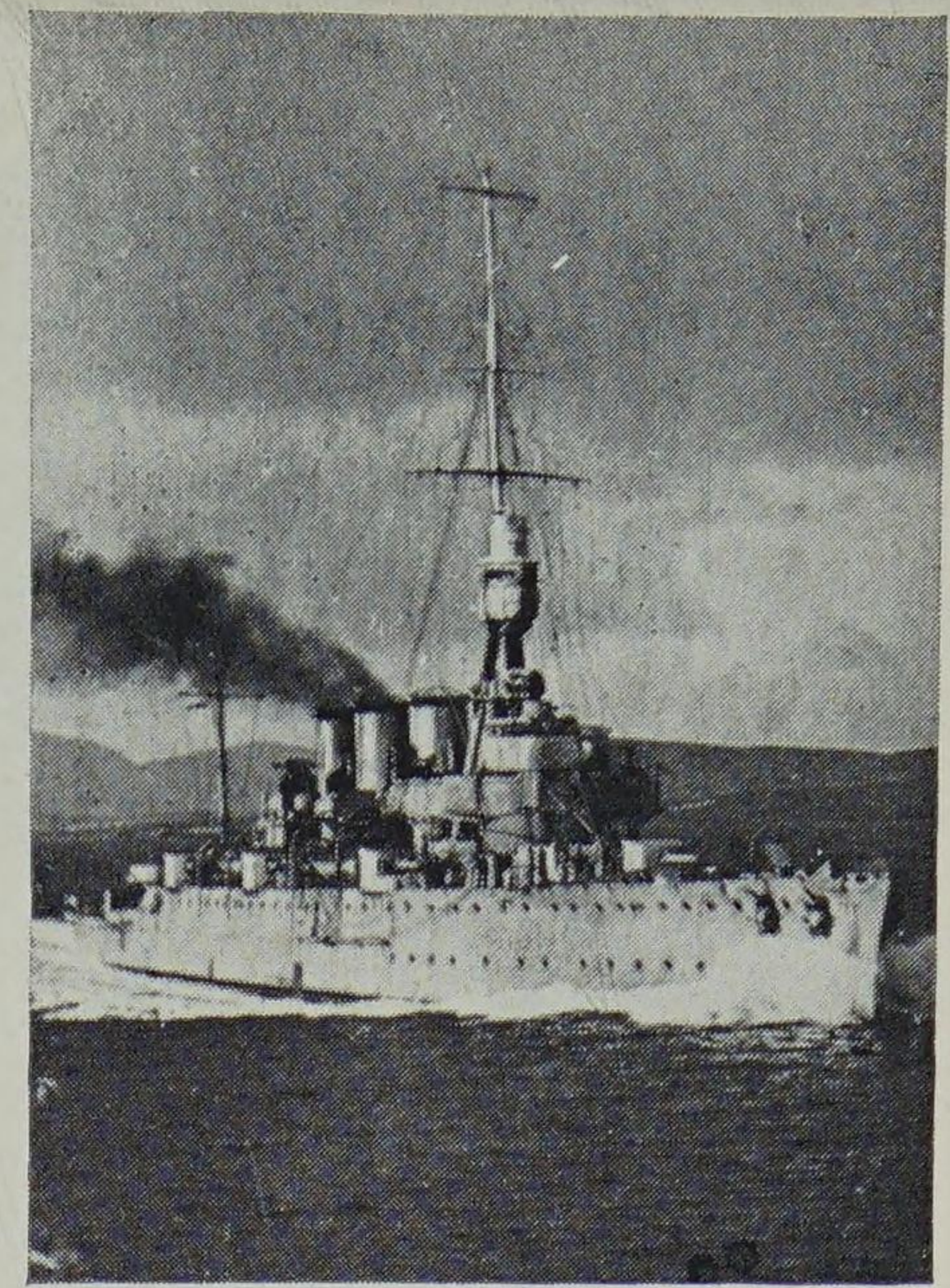


(Right): a deck view of H.M.S. *Birmingham* taken during the war.

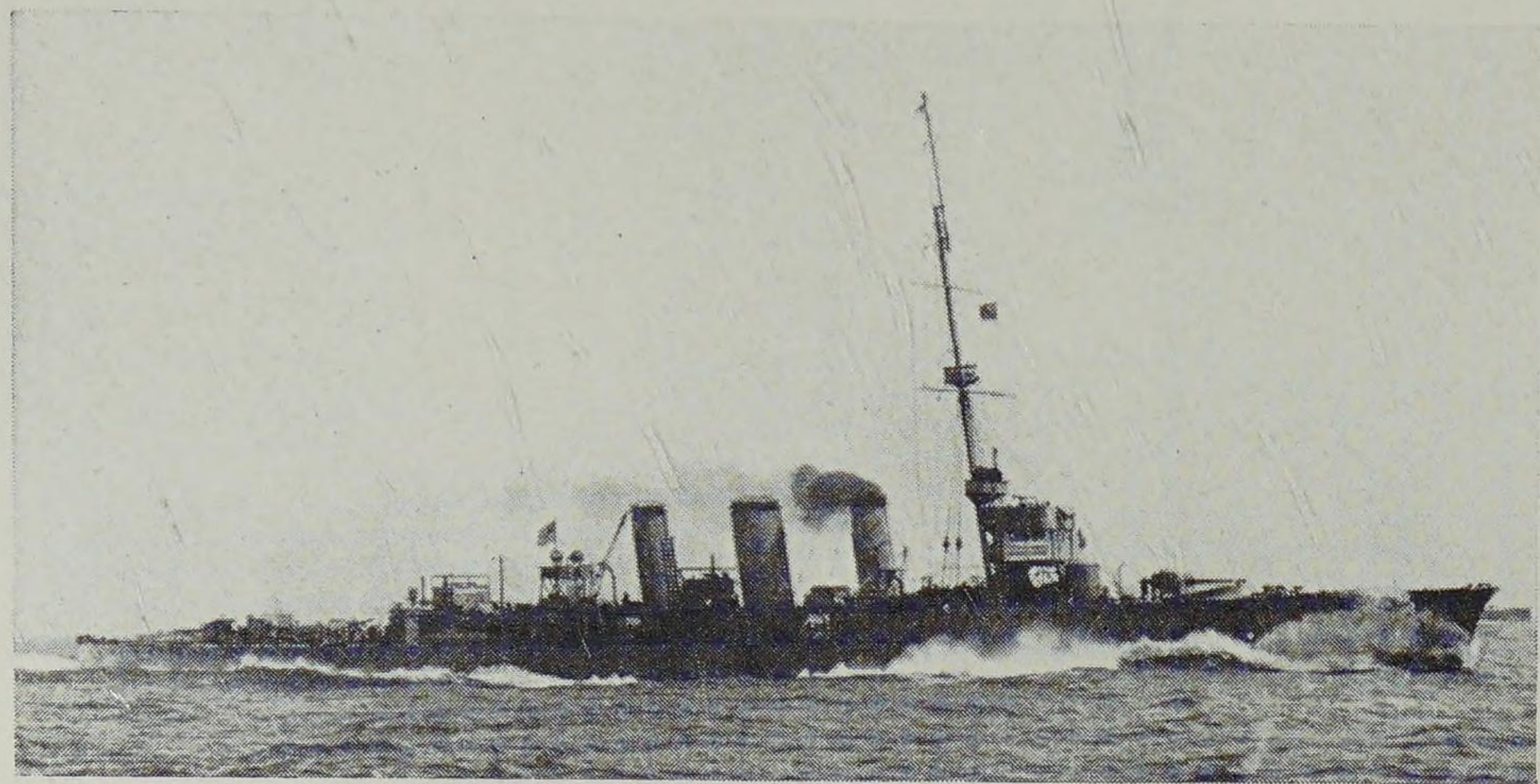
[*N.P.C. and I.W.M*

H.M.S. *Lowestoft* in 1915. [*I.W.M.*

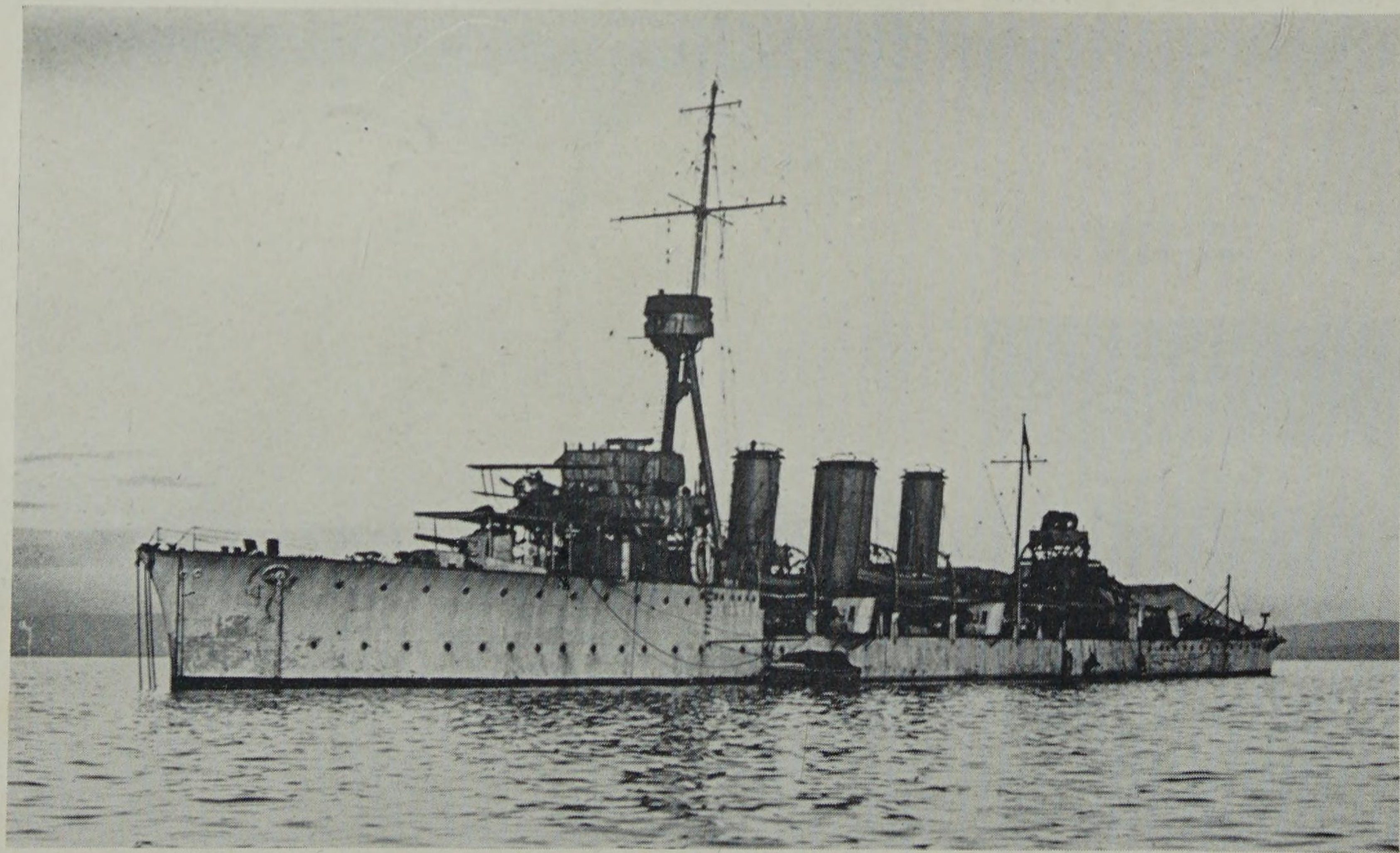




Above: Two views of H.M.S. *Chester* of Jutland fame.
[*N.P.C. and I.W.M.*



Left: H.M.S. *Arethusa* on patrol in the North Sea in 1914. [*I.W.M.*



H.M.S. *Undaunted*. Note aircraft carried. [I.W.M.

LIGHT CRUISERS

The type of cruiser required for North Sea operations was a compromise between " Scouts " and " Towns " plus much higher speed to work with fast destroyers. The first of these new ships, the " Arethusa " and " Caroline " classes, began to come into service just before the War. Although rather cramped, they were admirable little ships which formed the basis of wartime cruiser development and bore the brunt of the fighting, often surviving severe damage. In spite of many alterations the classes may be differentiated as follows:—

Class	*Funnels*	*Bows*	*Gun disposition*
Arethusa	3	Cut-away	After 6 in. in tandem.
Caroline	,,	,,	,, ,, superimposed.
Cambrian	2	,,	2nd 6in. abaft funnels.
Centaur	,,	,,	,, ,, ahead of funnels.
Caledon	,,	Raked.	,, ,, ,, ,,
Ceres	,,	,,	,, superimposed.
Carlisle	,,	Trawler	,, ,, ,,
Danae	,,	Raked.	As Ceres but extra 6 in. ahead of funnels.
Delhi	,,	Trawler.	As Carlisle ,, ,, ,, ,, ,, ,,

Wartime Alterations. (1) Mixed Armament. As built the "Arethusas" had 2—6 in. and 6—4 in. guns, the " Carolines " 2—6 in. and 8—4 in., *Calliope* and *Champion* 3—6 in. and 6—4 in. As on earlier classes this proved unsatisfactory and the 4 in. guns were replaced wholly or in part by a lesser number of 6 in., except on *Aurora* and *Undaunted.* (2) Tripod masts. *Centaur* (1916) was the first to be built with one—all earlier ships were fitted by about 1917. (3) Aircraft carried. From 1917, some of the earlier ships, without superimposed guns, were fitted with aircraft runways over the forecastle 6 in. gun. Of the later ships, *Carlisle*, *Capetown*, *Dauntless* and *Dragon* were built with hangars below the bridge, whilst a few had revolving platforms abaft the funnels. This equipment was removed later. (4) Minelaying. Some ships were temporarily adapted for this work during the War.

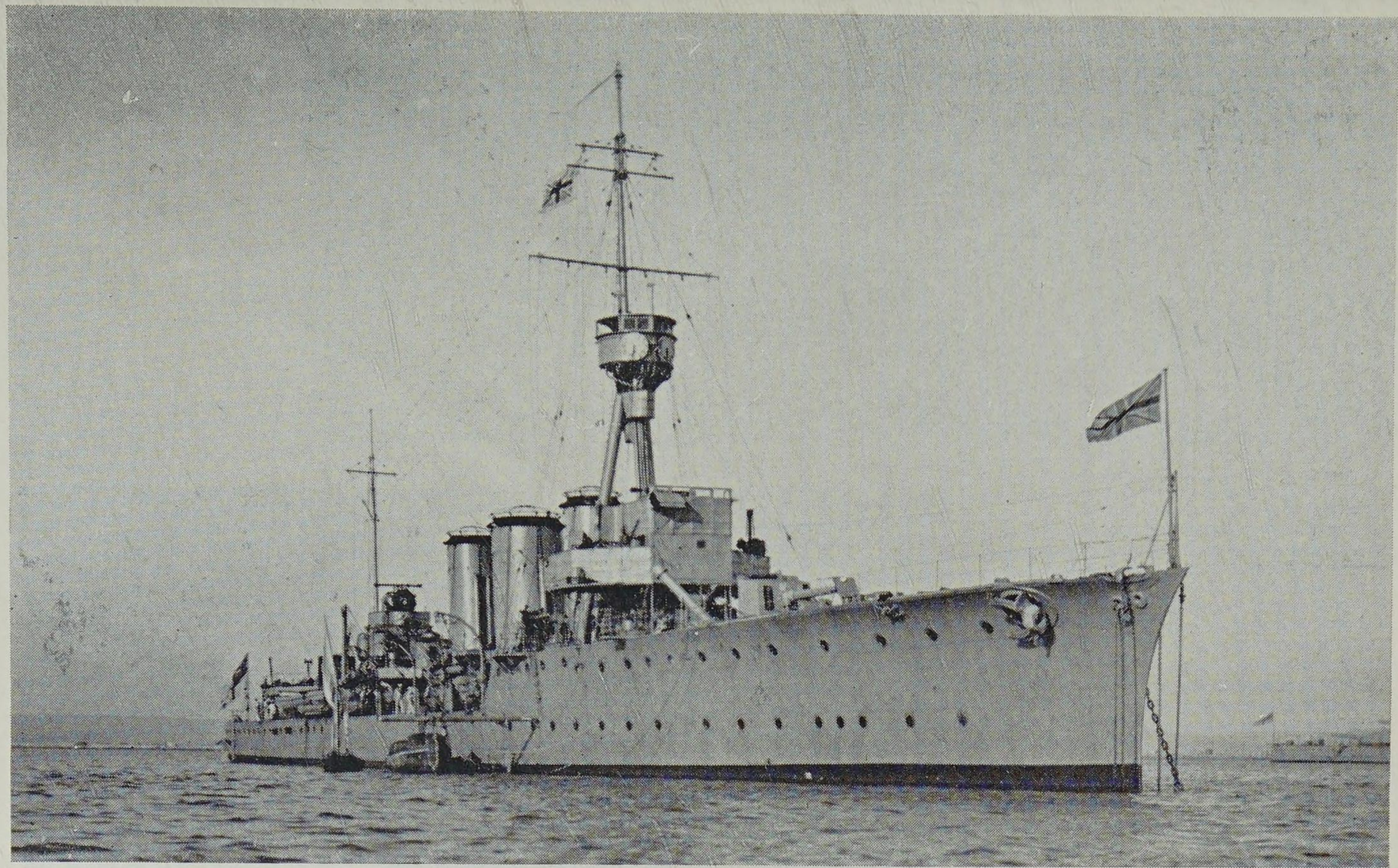
ARETHUSA CLASS

Length: 436 ft. *Beam:* 39 ft. *Displacement:* 3,512 tons.
Turbines: 4 screws. 40,000 h.p. 28.5—30 knots.
Guns:* 3—6 in., 4—4 in., 2—3 in. or 1—4 in. A.A. *Torpedo tubes:* 8—21 in.
Armour: Belt 3 in., deck 1 in. *Complement:* 318.

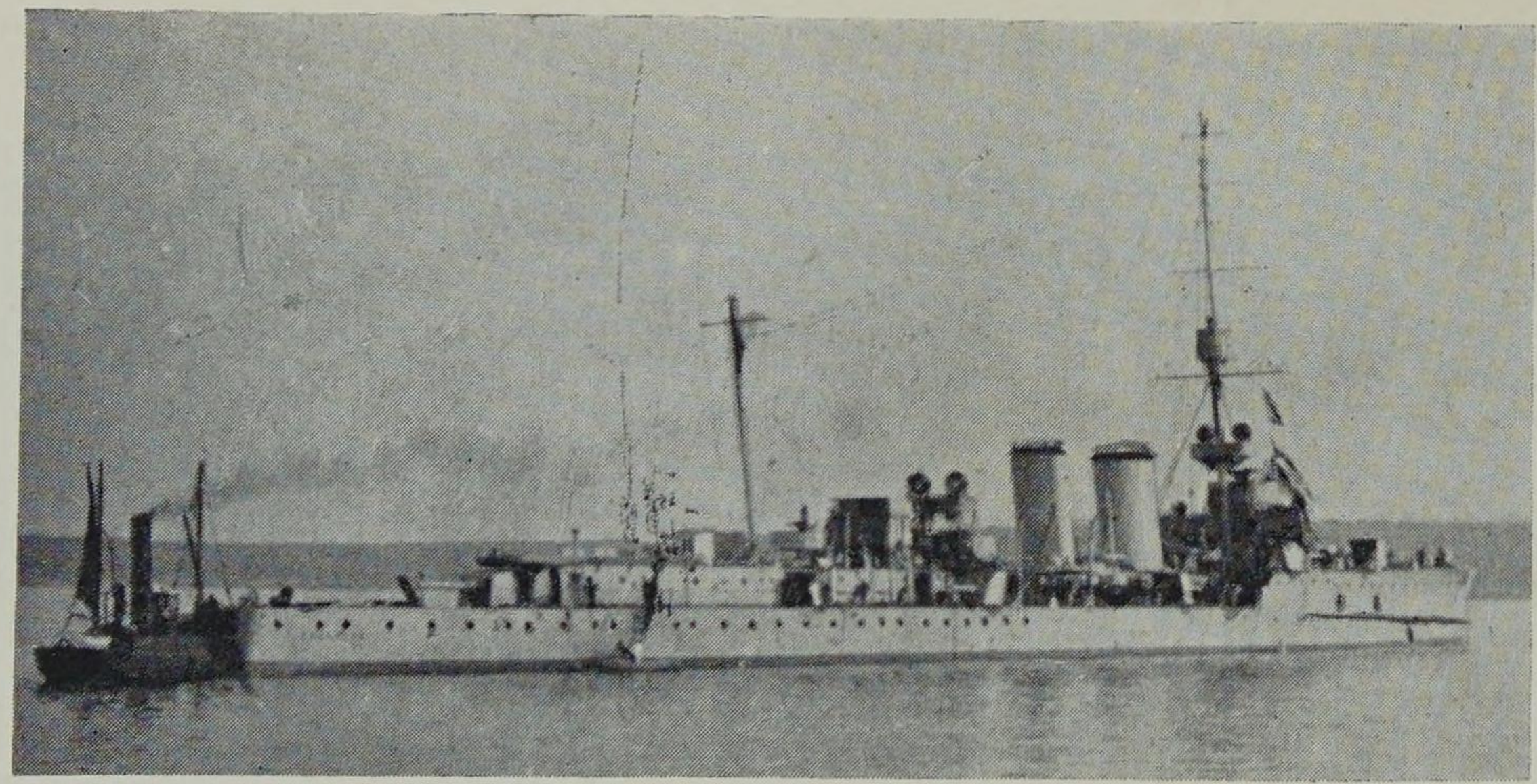
*Except *Aurora* and *Undaunted—see note above.*

Name	*Completed*	*Builder*		
Arethusa	1914	C.Dy.	1916	Mined.
Aurora	1914	D.Dy	1922	Hulked.
Galatea	1914	WB.	1921	Sold.
Inconstant	1915	WB.	1922	Sold.
Penelope	1914	V.	1924	Sold.
Phaeton	1915	V.	1923	Sold.
Royalist	1915	WB.	1922	Sold.
Undaunted	1914	F.	1923	Sold.

H.M.S. *Carolina* as built, with mixed armament and without tripod mast. [I.W.M.

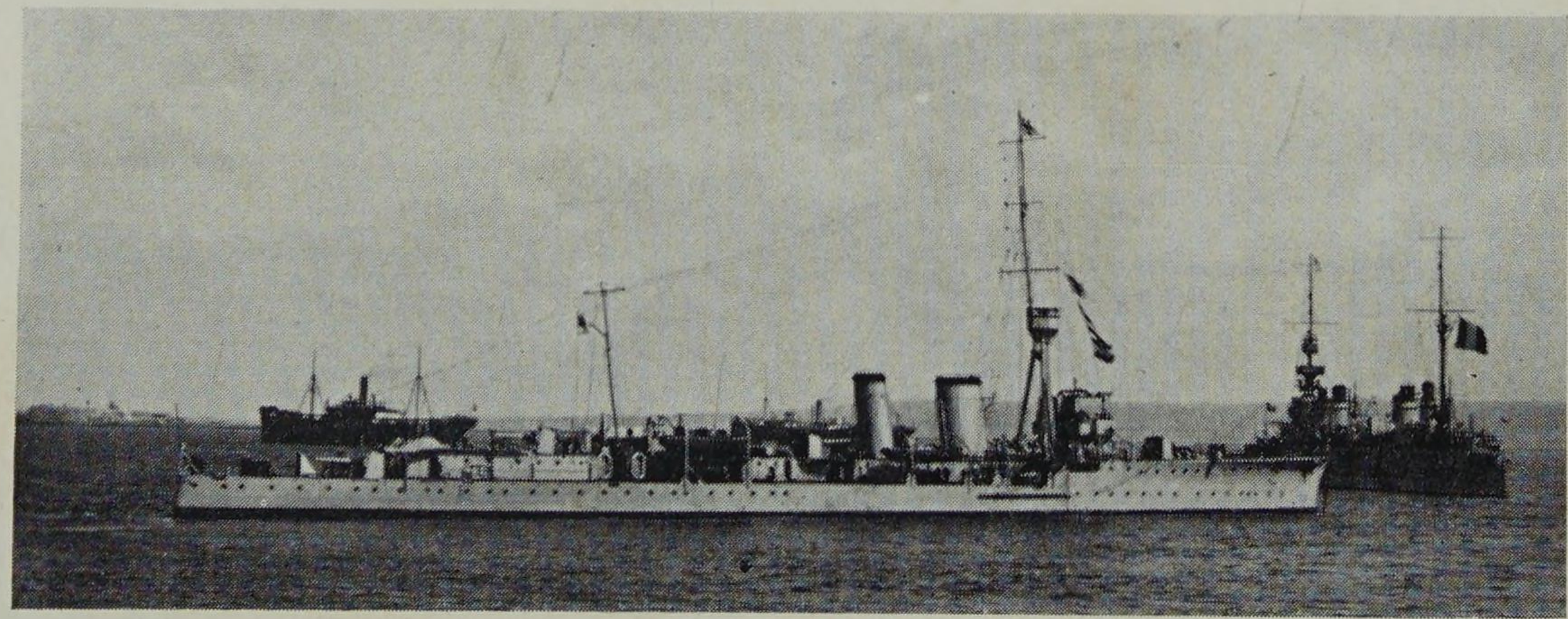


H.M.S. *Cordelia.* [Seward



Left: H.M.S. *Calliope* as built, with mixed armament and without tripod mast. [*N.P.C.*

Below: H.M.S. *Castor*, leader of the Grand Fleet Destroyer Flotillas. [*H.S. & R.*



ARETHUSA CLASS

Arethusa: 1914 Harwich Force, Heligoland, 1915 Dogger Bank, Feb. 1916 mined in North Sea. *Aurora:* 1915 with Harwich destroyers, Dogger Bank, 5th L.C.S., 1918 Grand Fleet, 1920 presented to Canada. *Galatea, Inconstant, Phaeton* and *Royalist,* 1914-15 Grand Fleet, 1916 Jutland. *Penelope:* 1914 Harwich Force, 1918 Grand Fleet. *Undaunted:* 1914 Harwich Force, 1915 Dogger Bank, 1918 Grand Fleet.

CAROLINE CLASS

Length: 446 ft. *Beam:* 41½ ft. *Displacement:* 3,750 tons.
Turbines: 4 screws. 40,000 h.p. 28.5—30 knots.
Guns: 4—6 in., 1 or 2—3 in. or 4 in. A.A. *Torpedo tubes:* 4 to 8—21 in.
Armour: Belt 3 in., deck 1 in. *Complement:* 325.

Name	*Completed*	*Builder*		
Caroline	1914	CL.	1926	Became R.N.V.R. Drillship.
Carysfort	1915	Pem.Dy.	1931	Sold.
Cleopatra	1915	D.Dy.	1931	Sold.
Comus	1915	SH.	1934	Sold.
Conquest	1915	C.Dy.	1929	Sold.
Cordelia	1915	Pem.Dy.	1923	Sold.

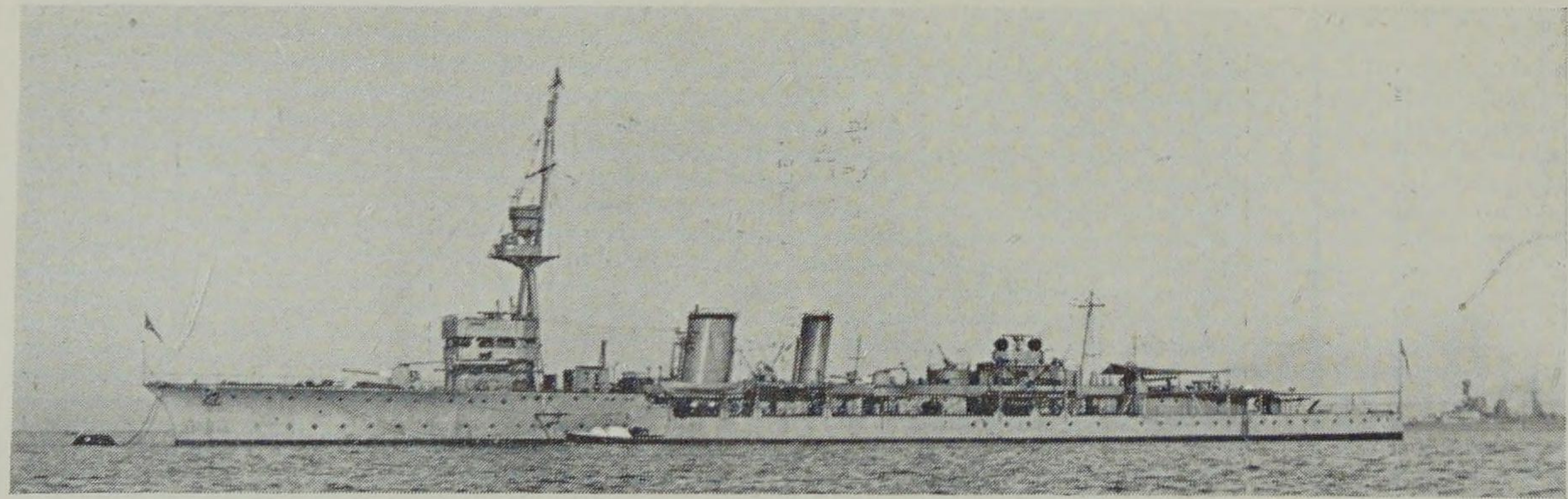
Caroline (built in record time of 11 months), 1915 Grand Fleet, 1916 Jutland *Carysfort,* 1915 Grand Fleet, 1916 Harwich Force, 1918 Grand Fleet. *Cleopatra:* 1915 Harwich Force, 1916 rammed and sank German destroyer G.194, 1918 Grand Fleet. *Comus:* 1915 Grand Fleet, 1916 sinking of raider *Greif,* 1916 Jutland. *Conquest:* 1915-18 Harwich Force. *Cordelia:* 1915 Grand Fleet, 1916 Jutland. All War service in North Sea, some going to overseas stations after the War.

CAMBRIAN CLASS

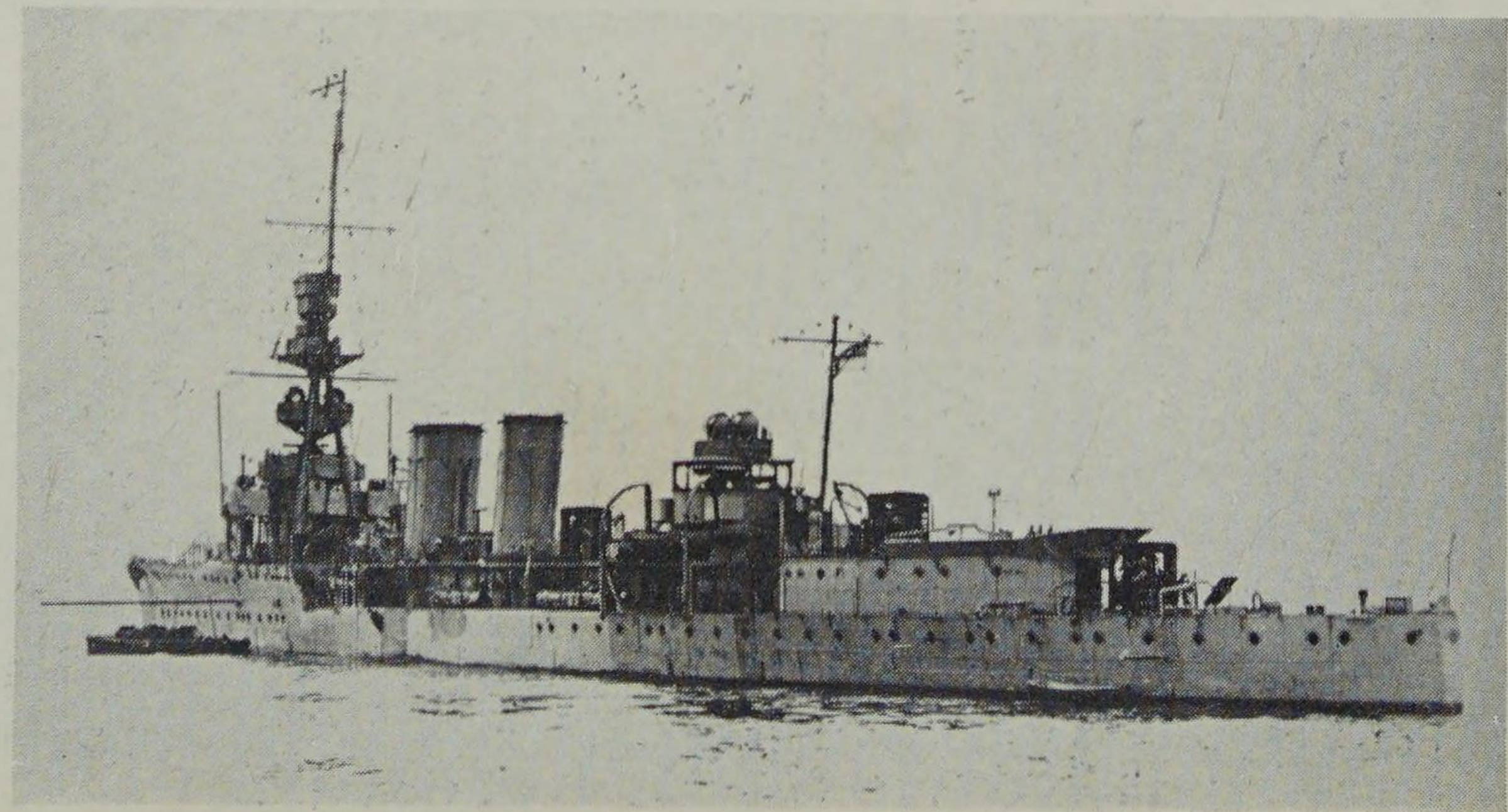
As " Carolines " but with two funnels. *Calliope* and *Champion* had geared turbines (first British Cruisers so fitted), *Champion* with 2 screws. *Calliope* and *Champion* had 4 in. belt.

Name	*Completed*	*Builder*		
Calliope	1915	C.Dy.	1931	Sold.
Cambrian	1916	Pem.Dy.	1934	Sold.
Canterbury	1916	C.	1934	Sold.
Castor	1915	CL.	1935	Sold.
Champion	1915	HL.	1934	Sold.
Constance	1916	CL.	1936	Sold.

Calliope: 1915 Grand Fleet, 1916 Jutland. *Cambrian:* 1916-18 Grand Fleet. *Canterbury:* 1916 Harwich Force, Jutland, 1918-19 Aegean and Black Sea. *Casto.* and *Champion:* 1915-18 with Grand Fleet destroyers, 1916 Jutland. *Constance:* 1916 Grand Fleet, Jutland. These ships subsequently served on overseas stations or in the Atlantic Fleet.



Above:
H.M.S. *Centaur.* [*Seward*



Right:
H.M.S. *Caledon.* [*N.P.C.*

CENTAUR CLASS

As " Cambrian " class with geared turbines and four screws but guns: — 5—6 in., 2—3 in. A.A., and *Torpedo tubes:* 2—21 in.

Name	Completed	Builder	
Centaur	1916	AW.	1933 Sold.
Concord	1916	AW.	1935 Sold.

Both Harwich Force 1916-18. *Centaur*, mined 1917, survived with bow and stern blown off.

CALEDON CLASS

Length: 450 ft. *Beam:* 42 ft. *Displacement:* 4,120 tons.
Geared turbines: 2 screws. 40,000 h.p. 29-30 knots.
Guns: 5—6 in., 2—3 in. A.A. *Torpedo tubes:* 8—21 in.
Armour: Belt 3 in., deck 1 in. *Complement:* 344.

Name	Completed	Builder	
Caledon	1917	CL.	1948 Scrapped.
Calypso	1917	HL.	1940 Torpedoed.
Caradoc	1917	Sc.	1946 Scrapped.
Cassandra	1917	V.	1918 Mined.

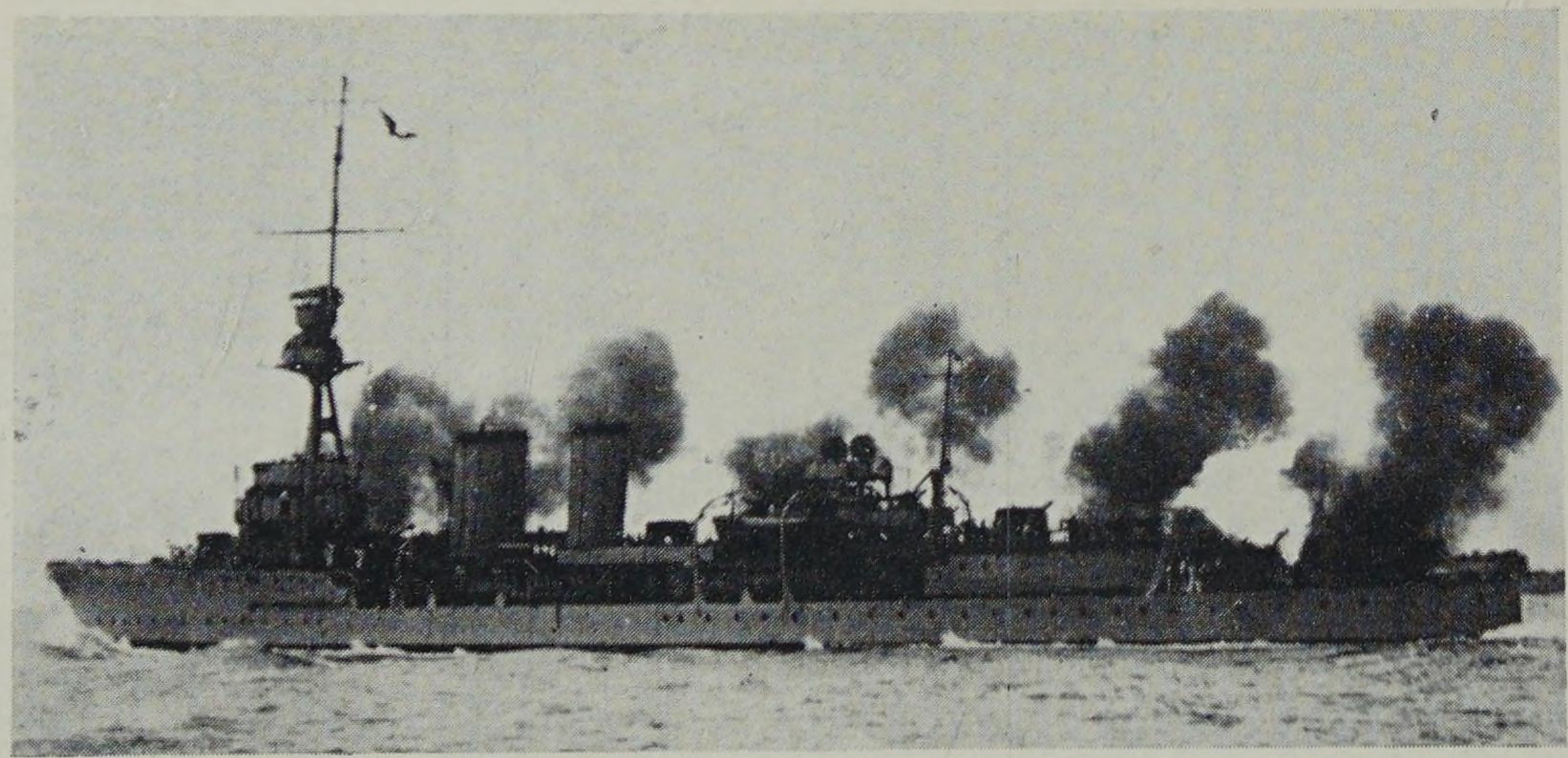
Caledon: 1917 Grand Fleet Ist L.C.S. (flagship). The other three ships were also in the Grand Fleet, going to the Baltic at the end of 1918 where *Cassandra* was mined and sunk. *Caledon*, *Calypso* and *Caradoc* served in World War II, *Calypso* being lost.

CERES CLASS

As " Caledon " class but beam 43½ ft., displacement 4,190 tons.

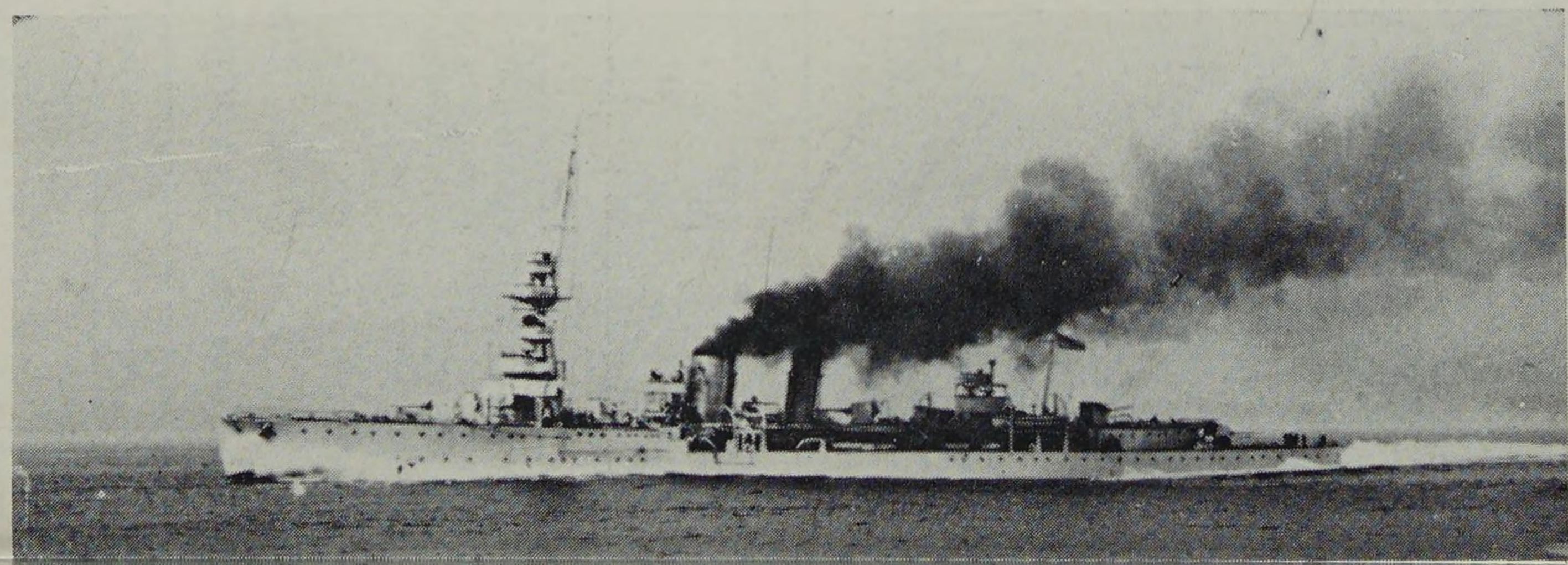
Name	Completed	Builder	
Cardiff	1917	F.	1945 Scrapped.
Ceres	1917	C.	1946 Sold.
Coventry	1918	SH.	1942 Sunk by aircraft.
Curacoa	1918	Pem.Dy.	1942 Sunk in collision.
Curlew	1917	V.	1940 Sunk by aircraft.

Cardiff: 1917 Grand Fleet 6th L.C.S. (flagship), 1918 led High Seas Fleet to surrender. *Ceres:* 1917 Grand Fleet. *Coventry* and *Curlew*, 1918 Harwich Force. *Curacoa*, 1918 Harwich Force, 1919 mined in Baltic but survived. These ships were converted to A.A. (Anti-aircraft) cruisers 1935-40 and served in World War II. *Curacoa* was sunk in collision with the *Queen Mary* in Oct. 1942.



Left: H.M.S. *Calypso*, firing 6 in. guns. [*N.P.C.*

Below: H.M.S. *Cassandra* at full speed. [*I.W.M.*



CARLISLE CLASS

As " Ceres " class but with trawler bows, length 451½ ft., displacement 4,290 tons and complement of 350. *Carlisle*, the first, was completed at the Armistice and although this class saw no service in World War I, their inclusion completes the ' C ' Group.

Name	Completed	Builder		
Calcutta	1919	V.	1941	Sunk by aircraft.
Cairo	1919	CL.	1942	Torpedoed.
Carlisle	1918	F.	1946	Scrapped.
Colombo	1919	F.	1948	Scrapped.
Capetown	1922	CL. and Pem.Dy.	1946	Scrapped.

Converted to Anti-aircraft cruisers in 1939-41, these ships served in World War II.

DANAE CLASS

Length: 471 ft. *Beam:* 46 ft. *Displacement:* 4,650 tons.
Geared turbines: 2 screws. 40,000 h.p. 28.5—29 knots.
Guns: 6—6 in., 2—3 in. A.A. *Torpedo tubes:* 12—21 in.
Armour: Belt 3 in., deck 1 in. *Complement:* 350—400.

Name	Completed	Builder		
Danae	1918	AW.	1948	Scrapped.
Dauntless	1918	Pal.	1947	Scrapped.
Dragon	1918	Sc.	1944	Sunk as part of " Mulberry" breakwater.

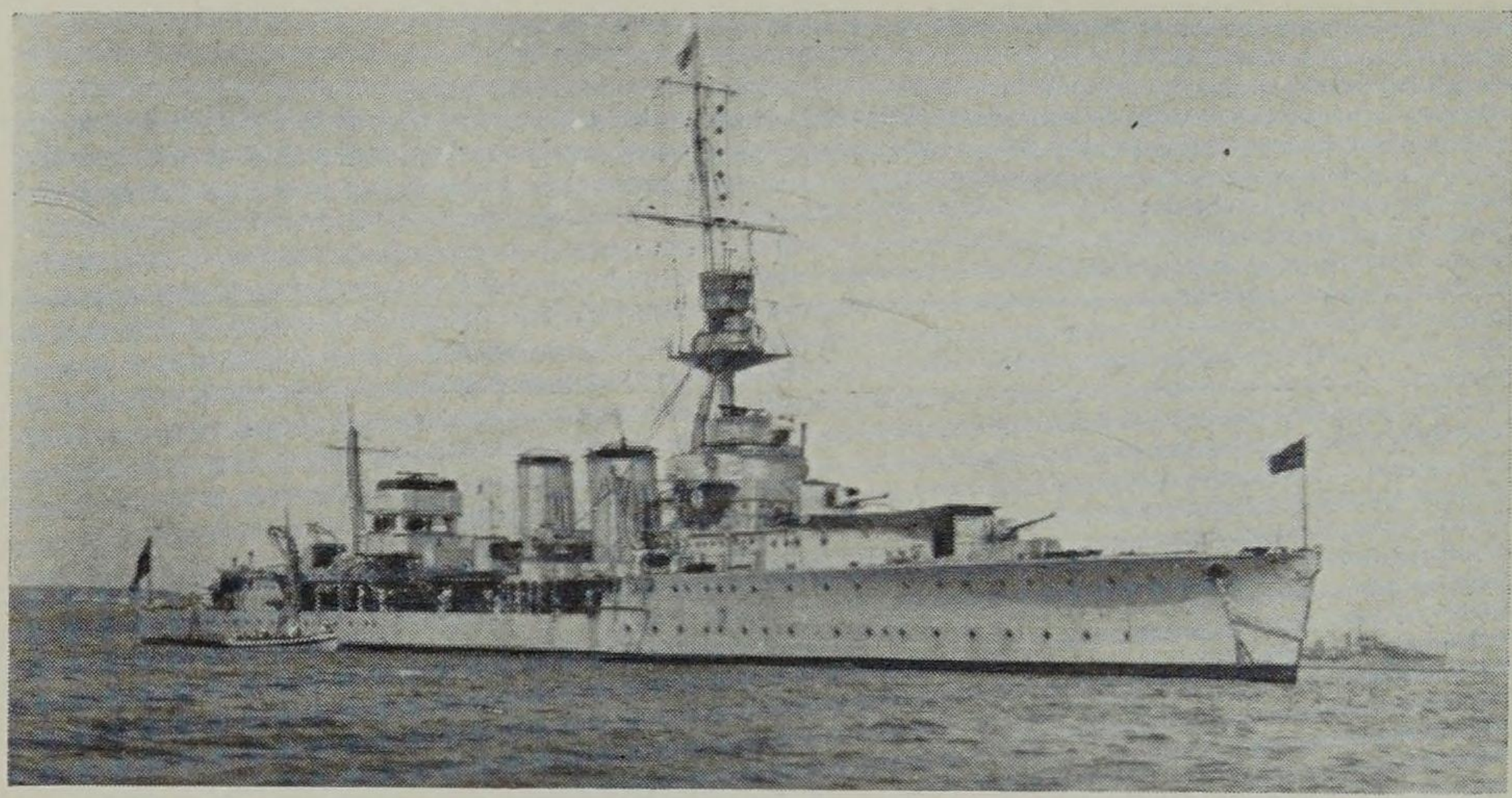
All three ships went to the 5th L.C.S. (Harwich), on completion. They served in World War II, *Danae* and *Dragon* being transferred to the Polish Navy

DELHI CLASS

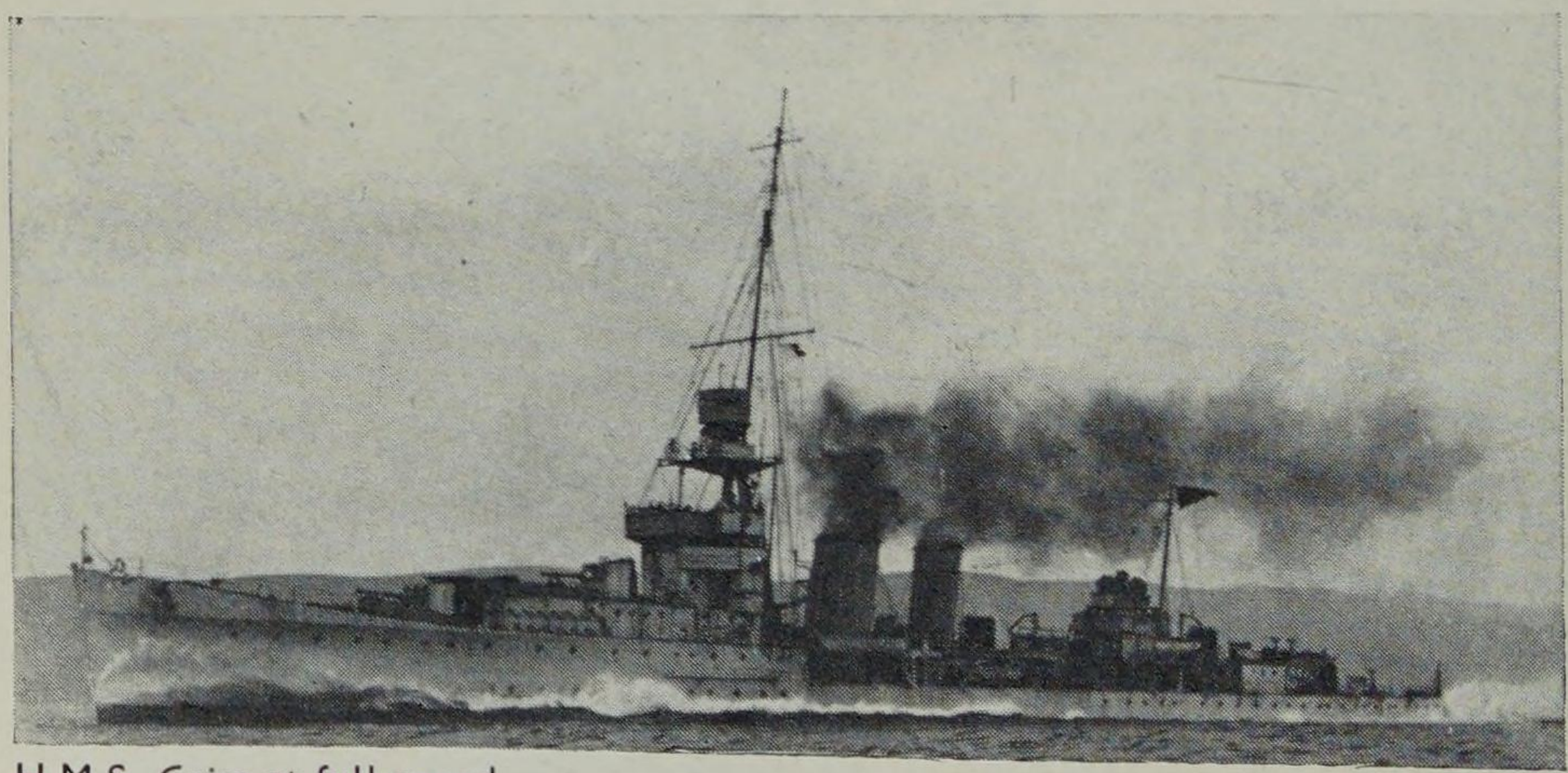
As Danae class but with trawler bows and length of 472½ ft.

Name	Completed	Builder		
Delhi	1919	AW.	1948	Scrapped.
Dunedin	1919	AW.	1941	Torpedoed.
Durban	1921	Sc. and D.Dy.	1944	Sunk as part of " Mulberry" breakwater.

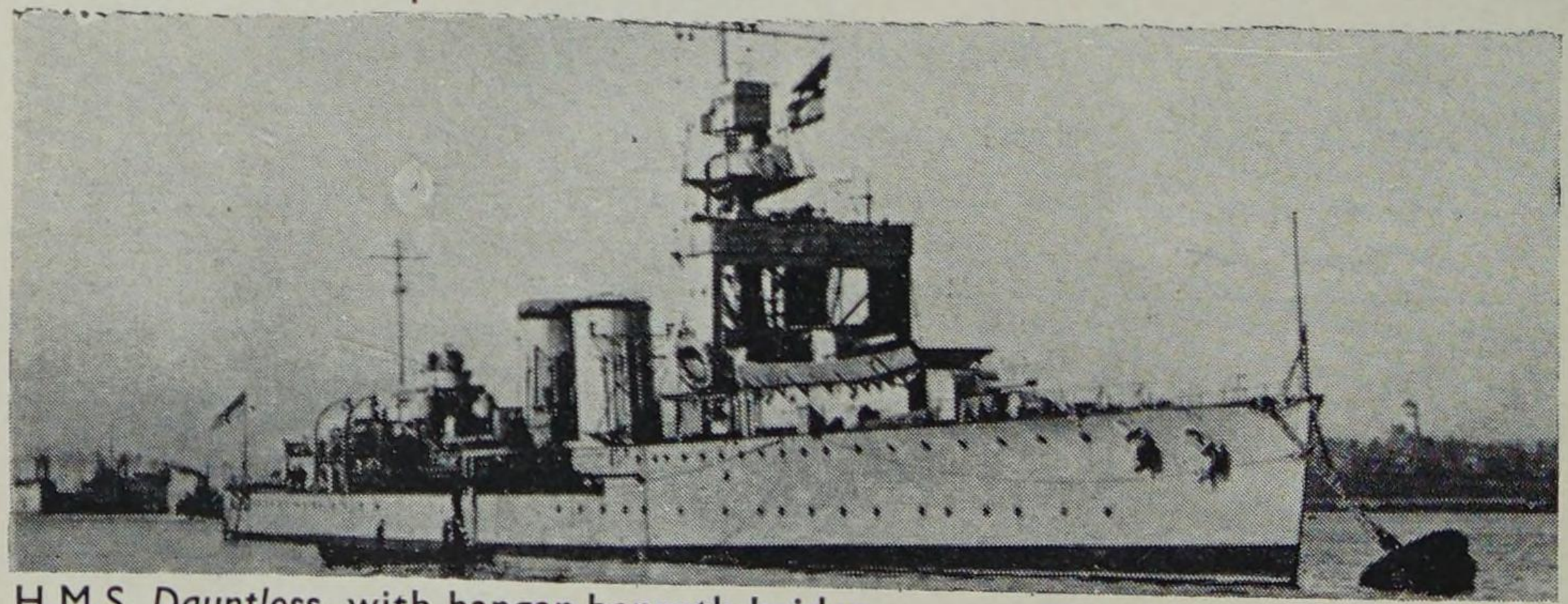
Sister ships: *Despatch* and *Diomede* completed 1922, *Daedalus*, *Daring*, *Desperate* and *Dryad* cancelled.



H.M.S. *Curacoa.* [*Seward*



H.M.S. *Cairo* at full speed.



H.M.S. *Dauntless*, with hangar beneath bridge. [*N.P.C.*

CRUISERS AT WAR

As the Grand Fleet, with most of our more modern cruisers, assembled at its Northern bases, German minelayers were already at work. Also, German cruisers were at distant stations, ready to act as raiders with the purpose of dislocating trade routes and diverting the greatest number of our cruisers in pursuit. To cover vast stretches of ocean, in the days before aircraft and radar, required many ships. Furthermore, hunters and hunted might well pass close to each other unseen at night or in misty weather, as indeed sometimes happened.

Von Spee's Pacific squadron had disappeared and was not located until November 1st, 1914, when it was unexpectedly encountered by Admiral Cradock's squadron off Coronel, Chile. Both commanders believed that they were chasing a single enemy cruiser. The action was fought at sundown in heavy squalls with the British ships showing up against the afterglow, whereas they themselves were unable to see anything of the enemy except their gun flashes. The German *Scharnhorst* and *Gneisenau* were moreover crack gunnery ships and after putting up a gallant fight the cruisers *Good Hope* and *Monmouth* were sunk. The *Glasgow*, although damaged, managed to get away and signal this important news.

As a result of this action the battle cruisers *Invincible* and *Inflexible* were secretly despatched to the Falkland Is., to which the German squadron was believed to be heading. In the ensuing battle, on December 8th, the battle cruisers sank the *Scharnhorst* and *Gneisenau*, *Cornwall* and *Glasgow* sank the *Leipzig*, and *Kent* sank the *Nuernberg*. The *Kent*, which had always had difficulty in reaching her contract speed of 23 knots, surpassed herself by working up to 25 knots. The remaining German ship, *Dresden*, was disabled by *Cornwall* and *Glasgow* but got away, being later scuttled at Juan Fernandez to avoid capture.

Meanwhile the *Emden*, which had been operated with great skill in the Indian Ocean, sinking many ships, had been brought to bay and driven ashore on the Cocos Is. by H.M.A.S. *Sydney*. With this threat removed and with the occupation of German New Guinea, the Australian Fleet was in a position to reinforce the Grand Fleet with the battle cruiser *Australia*, the modern light cruisers *Melbourne* and *Sydney* and three destroyers which later went to the Mediterranean. In Africa, other German possessions were blockaded or in progress of being occupied, whilst the Japanese captured Tsingtao, being free thereafter to protect the Far East, and, later, to send destroyers to be based on Malta.

In the Mediterranean at the outbreak of war the situation had been delicate with the position of Italy and Turkey undeclared, and the German battle cruiser *Goeben* with the light cruiser *Breslau* had escaped to Turkey. After the first phase of the war, in which the more distant threats had been removed, the Mediterranean became the principal sphere of overseas naval activity, many of our cruisers being transferred there. The blockade of the Turkish fleet, the Turkish advance on Suez, the Dardanelles Campaign and the fighting in Mesopotamia led to a steady build-up of naval forces in the Eastern Mediterranean and, to a lesser extent, beyond Suez. At the same time British ships augmented the Italian fleet, which was containing the Austrian fleet in the Adriatic. The French, chiefly engaged in protecting convoys of their African army, also sent squadrons to the Dardanelles. Russian naval forces were active in the Baltic, but their Black Sea fleet had not yet been built up after the war with Japan in 1905.

Armed Merchant Cruisers		
Berlin	16/11/1914.	Interned at Trondheim.
Cap Trafalgar	14/9/1914.	Sunk by H.M.S. *Carmania* (A.M.C.) in S. Atlantic.
Kaiser Wilhelm der Grosse	27/8/1914.	Disabled by H.M.S. *Highflyer* and scuttled.
Kronprinz Wilhelm	11/4/1915.	Interned at Newport News, U.S.A.
Prinz Eitel Freidrich	9/3/1915.	Interned at Newport News, U.S.A.
Minelayer		
Konigin Luise	5/8/1914.	Sunk by H.M.S. *Amphion* and destroyers off the Scheldte. First casualty of the War.

BRITISH CRUISER DEPLOYMENT IN 1918

2nd C.S. Grand Fleet (the only 1914 heavy cruiser squadron still in being).
Minotaur (F), *Achilles*, *Shannon* (*Cochrane* detached to White Sea).

1st L.C.S. Grand Fleet (Battle Cruiser Force).
Caledon (F), *Galatea*, *Royalist*, *Phaeton*, *Inconstant*,

2nd L.C.S. Grand Fleet (Battle Cruiser Force).
Birmingham (F), *Dublin*, *Melbourne*, *Sydney*, *Yarmouth*.

3rd L.C.S. Grand Fleet (Battle Cruiser Force).
Birkenhead (F), *Chester*, *Chatham*, *Southampton*.

4th L.C.S. Grand Fleet.
Calliope (F), *Cambrian*, *Caroline*, *Comus*, *Constance*, *Cordelia*.

5th L.C.S. Harwich.
Curacoa (F), *Concord*, *Canterbury*, *Centaur*, *Cleopatra*, *Conquest*, *Coventry*, *Curlew*, *Danae*, *Dragon*, *Dauntless*, *Diamond*.

6th L.C.S. Grand Fleet (Battle Cruiser Force).
Cardiff (F), *Calypso*, *Caradoc*, *Cassandra*, *Ceres*.

7th L.C.S. Grand Fleet.
Carysfort (F), *Aurora*, *Penelope*, *Undaunted*.

8th L.C.S. Adriatic.
Lowestoft (F), *Dartmouth*, *Glasgow*, *Gloucester*, *Weymouth*.

Attached to Grand Fleet Battle Squadrons.
Bellona, *Blanche*, *Blonde*, *Boadicea*.

Attached to Flotillas.
Castor (Commodore D (=destroyers)). *Champion* (13th Destroyer Flot).
Fearless (12th Submarine Flot.—fast 'K' class vessels).

Aegean Squadron.
Endymion, *Theseus*, *Liverpool*, *Forward*, *Sentinel*, *Skirmisher*.

N. America and W. Indies Squadron (successor to the 4th C.S.).
Antrim, *Berwick*, *Carnarvon*, *Cornwall*, *Cumberland*, *Devonshire*, *Donegal*, *Duke of Edinburgh*, *Highflyer*, *Isis*, *King Alfred*, *Leviathan*, *Roxburgh*.

E. Indies. *Euryalus*, *Diana*, *Doris*, *Juno*, *Venus*.
Red Sea. *Grafton*, *Fox*, *Proserpine*, *Sapphire*, *Topaze*.
Australian Fleet. *Brisbane*, *Encounter*, *Philomel*, *Pioneer*, *Psyche*.
China. *Suffolk*, *Kent*.
Pacific. *Lancaster* (F.)

Canada. *Niobe* (joined 4th C.S.). *Rainbow* (Pacific Patrol).

S.E. Coast of South America. *Glasgow*.

Note. Many overseas squadrons were soon supplemented by Armed Merchant Cruisers.

Light Cruisers note. At the outbreak of war only four modern light cruisers were available to form the 1st L.C.S. with the Grand Fleet. With the rounding up of German raiders and the advent of new ships, the situation changed rapidly, so that by early 1915 there were three squadrons, the 1st being at Rosyth:—

1st L.C.S. *Galatea* (F), *Caroline*, *Cordelia*, *Inconstant*.

2nd L.C.S. (ex 1st L.C.S.). *Southampton* (F), *Birmingham*, *Lowestoft*, *Nottingham*.

3rd L.C.S. (ex 2nd L.C.S.). *Falmouth* (F), *Gloucester*, *Liverpool*, *Yarmouth*.

Continuing the 1914 position we find:—

Attached to Grand Fleet Battle Squadrons (and Fleet Flagship):—

Bellona, *Boadicea*, *Blanche*, *Blonde*, (and *Sappho*).

Attached to Channel Fleet Battle Squadrons (pre-Dreadnoughts):—

Diamond, *Topaze*, *Sapphire*, *Proserpine*, *Brilliant*, *Sirius*.

Minelayer Squadron.

Andromache, *Apollo*, *Iphigenia*, *Intrepid*, *Latona*, *Naiad*, *Thetis*.

Attached to Destroyer Flotillas (brackets signify additions in the first few months). (Commodore (T), Harwich. *Arethusa*, *Penelope*).

1st Flot.	*Fearless*.	2nd Flot.	*Active*, (*Galatea*).
3rd Flot.	*Amphion* (*Undaunted*).	4th Flot.	(*Caroline*).
5th Flot.	(Med.) none.	6th Flot.	*Adventure*, *Attentive*, *Foresight*.
7th Flot.	*Skirmisher*.	8th Flot.	*Pathfinder*, *Sentinel*.
9th Flot.	*Forward*, *Patrol*.	(10th Flot.	*Aurora*).

GERMAN SURFACE RAIDERS IN 1914

The principal ships and their elimination

Battle Cruiser		
Goeben	10/8/1914.	Escaped to Turkey.
Armoured Cruisers		
Scharnhorst	8/12/1914.	Sunk at Battle of the Falklands.
Gneisenau	8/12/1914.	Sunk at Battle of the Falklands.
Light Cruisers		
Breslau	10/8/1914.	Escaped to Turkey.
Dresden	8/12/1914.	Disabled at Battle of the Falklands
	14/3/1915	and finally scuttled at Juan Fernandez.
Emden	9/11/1914.	Sunk at Cocos Is. by H.M.A.S. *Sydney*
Karlsruhe	4/11/1914.	Blew up (cause unknown), 200 miles from Trinidad.
Koenigsberg	30/11/1914.	Blockaded in Rufiji River (E. Africa)
	11/7/1915	and finally sunk by Monitors.
Leipzig	8/12/1914.	Sunk at Battle of the Falklands.
Nuernberg	8/12/1914.	Sunk at Battle of the Falklands.

In the last two years of the war German submarines had become the greatest menace to our ships in the North Sea and the Atlantic; also U-boats and UC-boats (minelayers) operated from Austrian bases in the Adriatic. As the war progressed, with America joining the Allies in 1917, an increasing number of older cruisers were employed on North Atlantic convoys. After the Russian revolution cruisers were amongst the ships sent to Murmansk and the White Sea.

Throughout the war, however, the Grand Fleet maintained the Naval front line in the North Sea, where most of the modern light cruisers were deployed. They took part in all the major actions, including Heligoland, 1914, Dogger Bank, 1915, and Jutland, 1916, where four German light cruisers were sunk but none of ours (in spite of heavy damage)—a result which to some extent offset our loss of armoured cruisers. Lastly there was the epic blockade of Ostend and Zeebrugge, in April 1918, accomplished by six old cruisers led by the *Vindictive* to their valiant immolation.

BRITISH CRUISER DEPLOYMENT IN 1914

1st C.S. Mediterranean (soon to join Grand Fleet).
Defence (F), *Black Prince*, *Duke of Edinburgh*, *Warrior* and light cruisers *Chatham*, *Dublin*, *Gloucester*, *Weymouth* and later *Amethyst*.

2nd C.S. Grand Fleet.
Shannon (F), *Achilles*, *Cochrane*, *Natal*.

3rd C.S. Grand Fleet.
Antrim (F), *Argyll*, *Devonshire*, *Roxburgh*.

4th C.S. N. America and W. Indies.
Suffolk (F), *Lancaster*, *Essex*, *Berwick*, *Bristol*, (supported by two French cruisers and later joined by *Melbourne* and *Sydney* from Australia).

5th C.S. Mid Atlantic.
Carnarvon (F), *Cornwall*, *Cumberland*, *Monmouth*.

6th C.S. Intended for Grand Fleet but ships mostly on detached duties.
Drake, *King Alfred*, *Good Hope*, *Leviathan*,

7th C.S. Southern area of North Sea (soon to be dispersed).
Bacchante (F), *Aboukir*, *Euryalus*, *Hogue*, *Cressy*.

8th C.S. (not formed).

9th C.S. Mid Atlantic based on Gibraltar.
Europa (F), *Amphitrite*, *Argonaut*, *Vindictive*, *Highflyer*, *Challenger*.

10th C.S. Northern Patrol (soon replaced by 21 Armed Merchant Cruisers).
Crescent (F), *Edgar*, *Endymion*, *Theseus*, *Hawke*, *Grafton*, *Royal Arthur* .

11th C.S. West of Ireland Coast Patrol.
Juno (F), *Doris*, *Isis*, *Minerva*, *Venus* and later *Sutlej*.

12th C.S. Western Channel Patrol.
Charybdis (F), *Eclipse*, *Diana*, *Talbot* (supported by French squadron of eight cruisers and one light cruiser).

China Squadron. *Minotaur* (F), *Hampshire*, *Newcastle*, *Yarmouth*.
East Indies Squadron. *Fox*, *Dartmouth*, *Weymouth*.
Cape of Good Hope Squadron. *Hyacinth* (F), *Astraea*, *Pegasus*.
Australian Fleet. *Melbourne*, *Sydney*, *Encounter*, *Pioneer*.
New Zealand Division. *Psyche*, *Pyramus*, *Philomel*.

S.E. Coast of America. *Newcastle, Bristol, Amethyst.*
Cape of Good Hope. *Hyacinth* (F), *Talbot.*
E. Coast of Africa. *Minerva, Challenger.*
W. Coast of Africa. *Astraea* (also *Bacchante* (F) at Sierra Leone).
Canadian Patrol. *Rainbow.*
Gibraltar. *Edgar, Active, Adventure,* (*Attentive* detached to White Sea).
Queenstown. *Patrol.*
1st Mining Squadron. *Amphitrite* (with ships of other categories).
The remaining old cruisers had been reduced to Harbour Service or Depot Ships

Comparison between the 1914 and 1918 lists shows how completely the old cruisers had been displaced by modern light cruisers.

GERMAN SHIPS

The acquisition of overseas territories by Germany took place towards the end of the last century, and the rapid expansion of her fleet only began in the late 1890s. She possessed therefore comparatively few of the older armoured and protected cruisers.

German light cruisers, named after towns, were evolved progressively from the 2nd class protected cruiser type. By contrast Britain was building two or three variant types in this range. The German ships were fast, their official speeds being considerably under-stated. It used to be said that two knots could be added to the published speeds, which was borne out when the *Dresden*, officially 24.5 knots, was estimated to be doing 27 on one occasion. They were armed with excellent 4.1 in. guns which could outrange our older 6 in.

As in the British Fleet, both older and modern light cruisers were altered to minelayers or could be adapted for the purpose, but also two new ships, *Bremse* and *Brummer* were specially built as such. As such they may be regarded as the first of the Fast Minelayer type. Only one ship however, the *Stuttgart*, was altered to carry seaplanes, since the Germans largely used Zeppelins for air reconnaissance. Kite balloons, ship-borne aircraft and aircraft carriers were noticeably absent in the German High Seas Fleet.

In the following notes the abbreviations used for German Shipyards which built cruisers are:—

B. & V.	BLOHM & VOSS (HAMBURG).
Dz. Dy.	DANZIG DOCKYARD.
Ger.	KRUPP'S GERMANIA YARD (KIEL).
How.	HOWALDT (KIEL).
K. Dy.	KIEL DOCKYARD
Sch.	SCHICHAU (DANZIG AND ELBING).
Vul (H).	VULKAN (HAMBURG).
Vul (S).	VULKAN (STETTIN).
Wes.	WESER (BREMEN).
Wn. Dy.	WILHELMSHAVEN DOCKYARD.

English spelling has been used for such names as *Koenigsberg* (KÖNIGSBERG) *Bluecher* (BLÜCHER), etc.

ARMOURED CRUISERS

The two older two-funnelled armoured cruisers do not appear to have taken an active part in the war. *Fuerst Bismarck* (10,700 tons, of 1897), was a school ship in 1914, sold in 1919. *Prinz Heinrich* (8,930 tons, of 1900), was a Stokers' Training Ship discarded shortly after the war.

Other armoured cruisers could be distinguished as follows:—

Class	*Funnels*	*Turrets on each beam*
Prinz Adalbert	3	Two single 5.9 in.
Roon	4	,, ,, ,,
Scharnhorst	4	None.
Bluecher	2	Two twin 8.2 in.

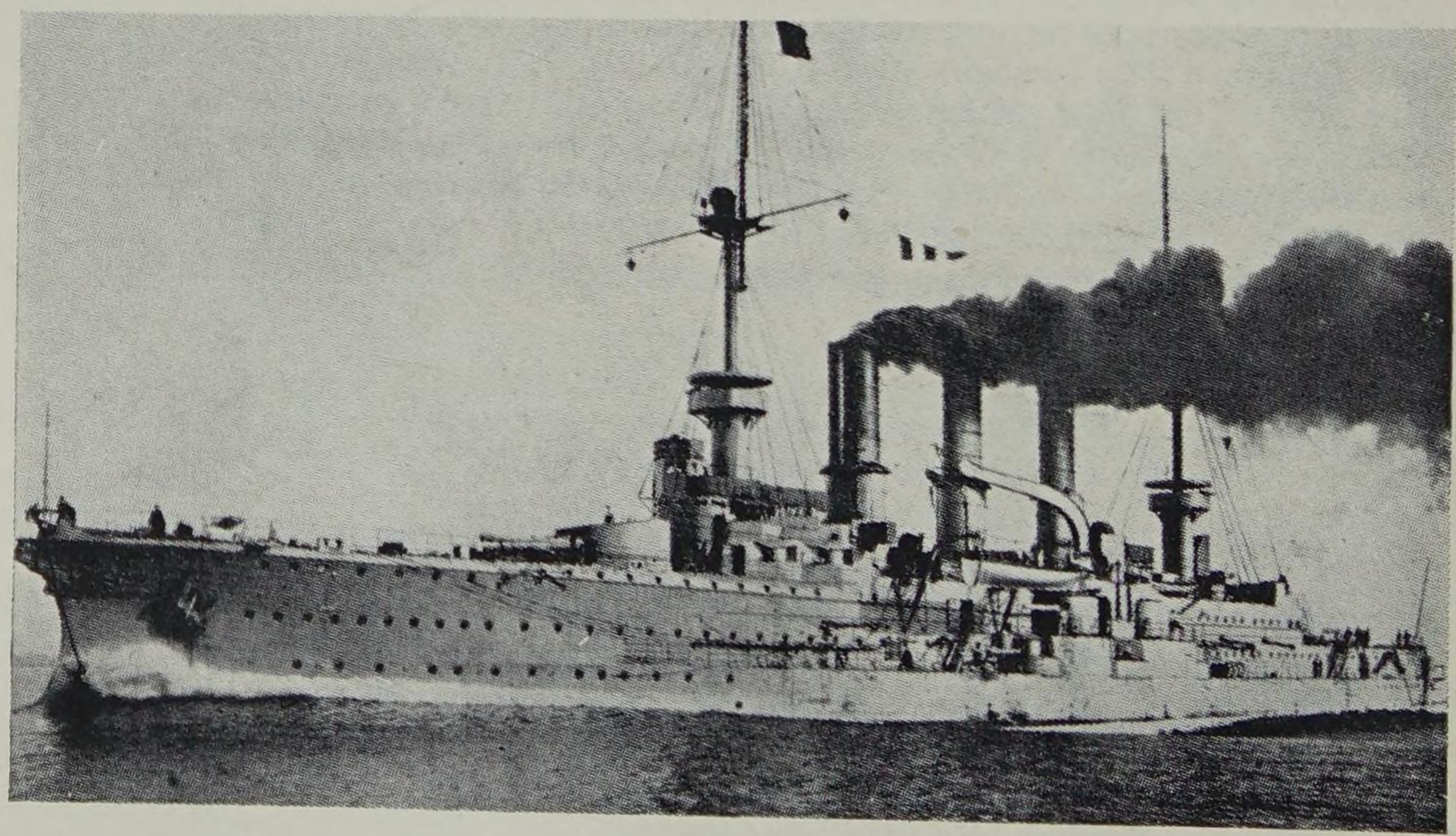
Bluecher resembled the " Westfalen " class battleships, before her tripod foremast was fitted in 1914.

PRINZ ADALBERT CLASS

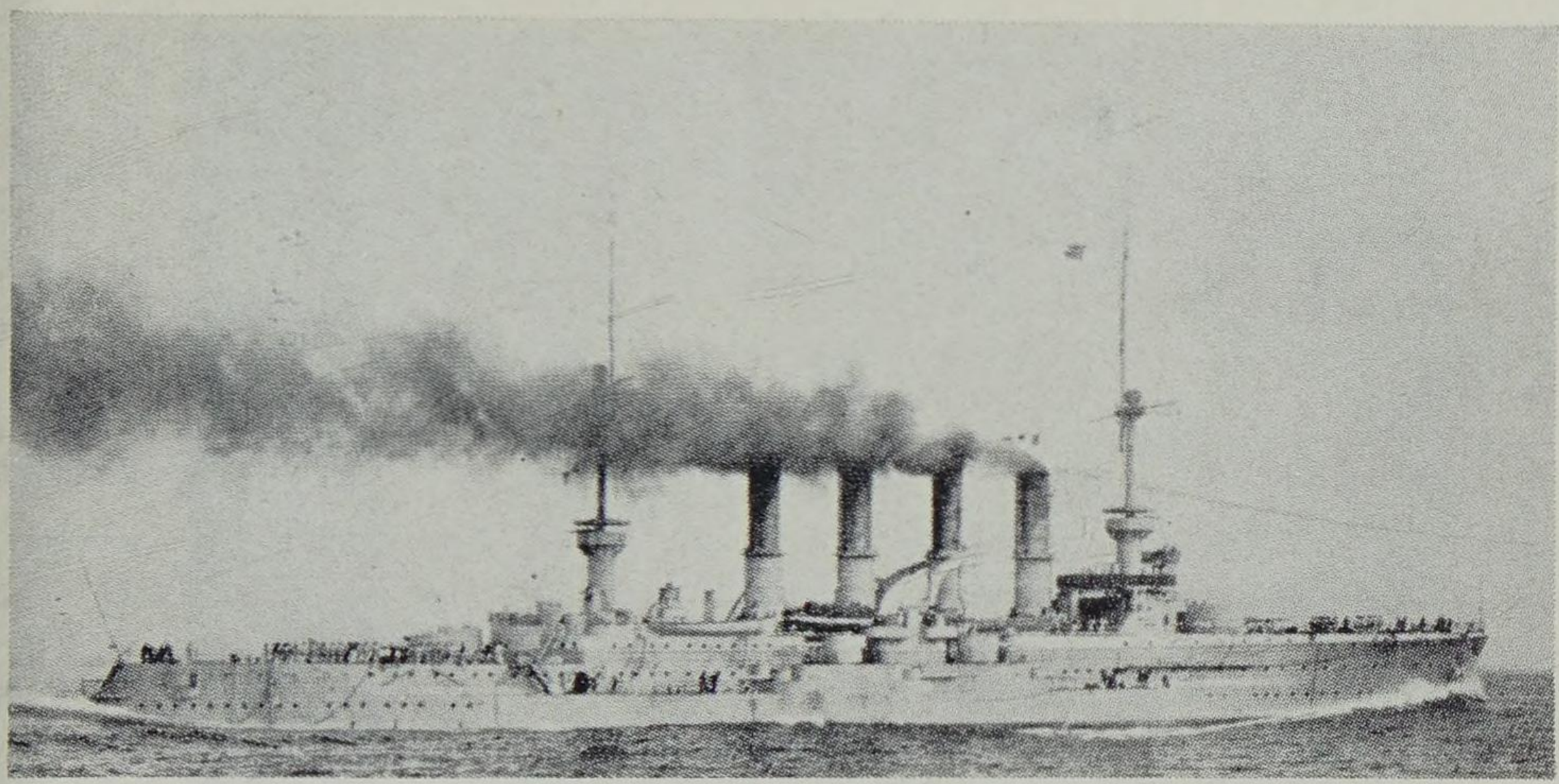
Length: 415 ft. *Beam:* 65 ft. *Displacement:* 9,050 tons.
Triple expansion (3-cyl.). 3 screws. 18,500 h.p. 21 knots.
Guns: 4—8.2 in., 10—5.9 in., 10—15½ pdr. *Torpedo tubes:* 4—17.7 in.
Armour: Belt 4 in., deck 2 in. *Complement:* 557.

Name	Completed	Builder	
Prinz Adalbert	1903	K.Dy.	1915 Torpedoed off Libau.
Friedrich Karl	1903	B. & V.	1914 Mined in Baltic.

Prinz Adalbert was torpedoed by British submarine E8 in Oct. 1915.



S.M.S. *Prinz Adalbert.*



S.M.S. *Roon.*

ROON CLASS

Length: 419¼ ft. *Beam:* 66 ft. *Displacement:* 9,350 tons.
Triple expansion (3-cyl.). 3 screws. 20,000 h.p. 21.5 knots.
Guns: 4—8.2 in., 10—5.9 in., 14—3.4 in. *Torpedo tubes:* 4—17.7 in.
Armour: Belt 4 in., deck 2¾ in. *Complement:* 633.

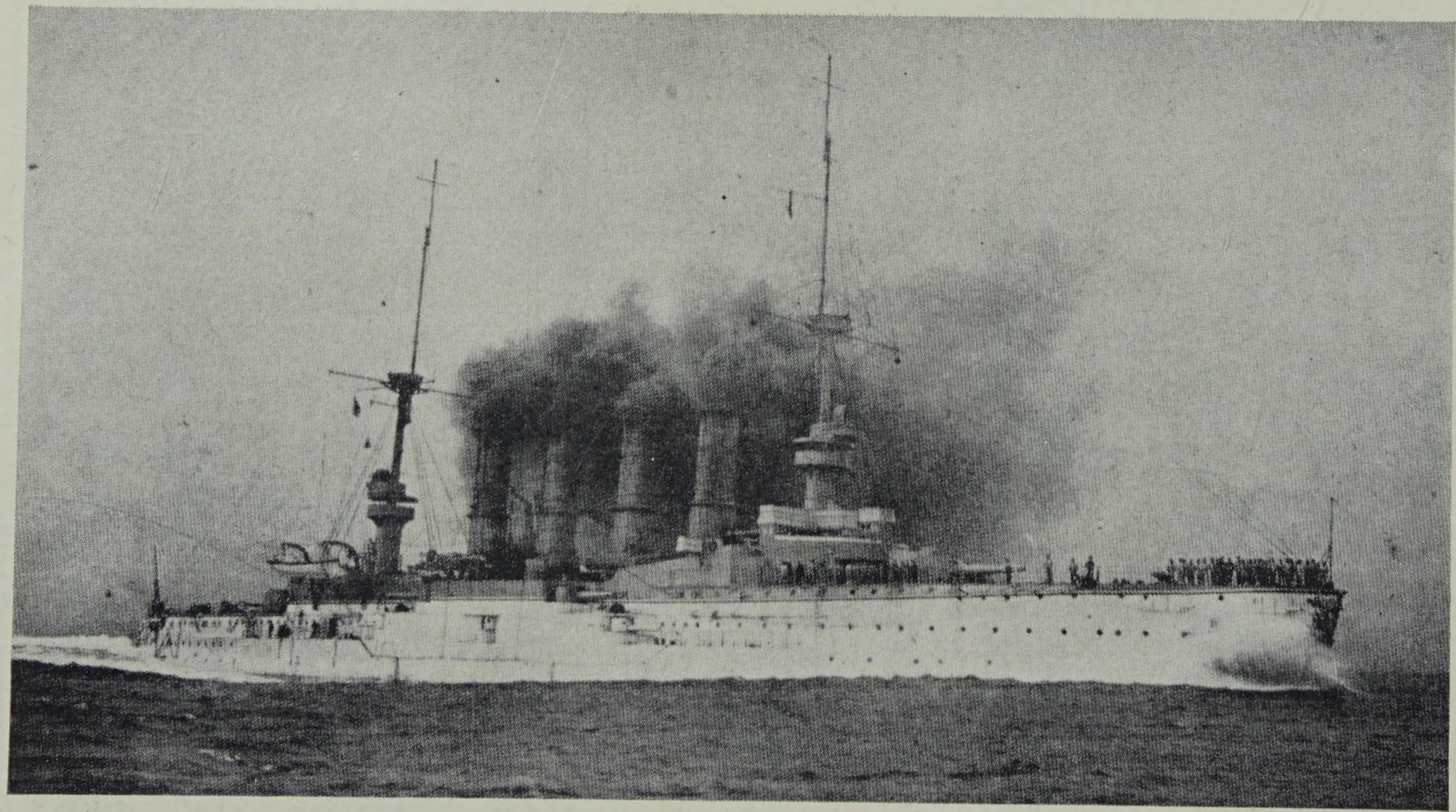
Name	*Completed*	*Builder*	
Roon	1905	K.Dy.	1919 Discarded.
Yorck	1906	B. & V.	1914 Mined in Jade Bay.

Roon was reduced to an Accommodation Ship by the end of the war.

SCHARNHORST CLASS

Length: 474½ ft. *Beam:* 71 ft. *Displacement:* 11,600 tons.
Triple expansion (3 and 4-cyl.). 3 screws. 26,000 h.p. 22.5 knots.
Guns: 8—8.2 in., 6—5.9 in., 20—3.4 in. *Torpedo tubes:* 4—17.7 in.
Armour: Belt 6 in., deck 2 in. *Complement:* 765—850.

Name	*Completed*	*Builder*	
Scharnhorst	1907	B. & V.	1914 Sunk at Battle of the Falklands.
Gneisenau	1907	Wes.	1914 ,, ,, ,,



S.M.S. *Scharnhorst.*

S.M.S. BLUECHER

Length: 530½ ft. *Beam:* 80½ ft. *Displacement:* 15,500 tons.
Triple expansion (4-cyl.). 3 screws. 32,000-44,000 h.p. 24.5-26 knots
Guns: 12—8.2 in., 8—5.9 in., 16—3.4 in. *Torpedo tubes:* 3—17.7 in.
Armour: Belt 6 in., turrets 6 in. *Complement:* 847-900.

Name	Completed	Builder	
Bluecher	1909	K.Dy.	1915 Sunk at Dogger Bank.

The origin of this ship is described in Part I of this series.

PROTECTED CRUISERS

In addition to the ships listed below, the older three-funnelled *Kaiserin Augusta* (6,060 tons, of 1892), was used as a gunnery training school. Distinguished features of the other ships were:—

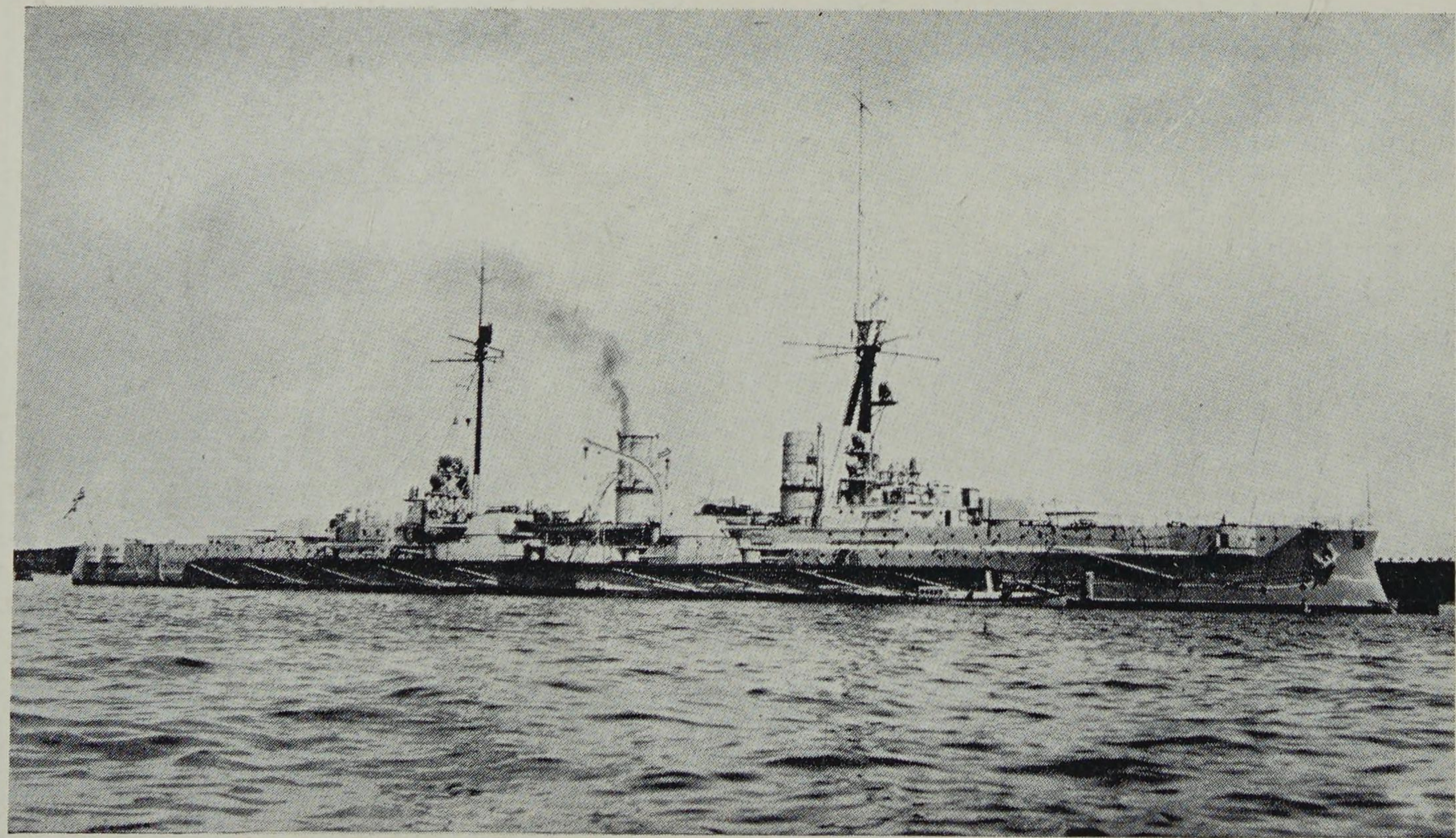
Class	*Funnels*	*Searchlights positions on masts.*
Gefion	3 tall	Mid foremast.
Freya	3 medium	On crosstrees of both masts.
Hertha	2 medium	On crosstrees of both masts.
Hela	2 tall	Low on foremast (also no raised poop as others).
Gazelle	,,	None.
Nymphe	,,	Mid foremast.
Frauenlob	,,	Mid, on both masts.

Note. Owing to later alterations to searchlight positions, particularly in the last three classes, these should not be taken as conclusive. The ships of the last three classes were very similar and have been grouped together in this section.

S.M.S. GEFION

Length: 362¼ ft. *Beam:* 42½ ft. *Displacement:* 3,770 tons.
Triple expansion (3 cyl.). 2 screws. 9,000 h.p. 20.5 knots.
Guns: 10—4.1 in., also smaller. *Torpedo tubes:* 2—17.7 in.
Armour: Deck 1¼ in. *Complement:* 302.

Name	Completed	Builder	
Gefion	1894	Sch.	1918 (circa). Reduced to hulk.



S.M.S. *Bluecher.*

S.M.S. FREYA

Length: 363 ft. *Beam:* 57 ft. *Displacement:* 5,660 tons.
Triple expansion (4-cyl.). 3 screws. 10,500 h.p. 19 knots.
Guns: 2—8.2 in., 6—5.9 in., 12—15½ pdr., also smaller. *Torpedo tubes:* 3—17.7 in.
Armour: Deck 4 in. *Complement:* 465.

Name	Completed	Builder	
Freya	1898	Dz.Dy.	By 1919 Depot Ship.
HERTHA CLASS (as above but two funnels and up to 5,885 tons).			
Hansa	1898	Vul (S).	By 1919 Depot Ship.
Hertha	1898	Vul (S).	,, Cadets Training Ship.
Victoria Luise	1898	Wes.	,, Hulk.
Vineta	1898	Dz.Dy.	,, Depot Ship.

Used mostly as Training Ships before the War, all except *Hansa*, had been disarmed by 1919.

S.M.S. HELA

Length: 344½ ft. *Beam:* 36 ft. *Displacement:* 2,040 tons.
Triple expansion (3-cyl.). 2 screws. 6,000 h.p. 20.5 knots.
Guns: 4—15½ pdr., also smaller. *Torpedo tubes:* 3—17.7 in.
Armour: Deck 1 in. *Complement:* 178. *Reconstructed in 1910.

Name	Completed	Builder	
Hela	1896*	Wes.	1914 Torpedoed by E9 (sub.) off Heligoland,

GAZELLE, NYMPHE and FRAUENLOB CLASSES

Length: 344½ ft. *Beam:* 39-40 ft. *Displacement:* 2,645—2,715 tons.
Triple expansion (3- or 4-cyl.). 2 screws. 8,500 h.p. 21.5 knots.
Guns: 10—4.1 in., also smaller. *Torpedo tubes:* 2—17.7 in.
Armour: Deck 2 in. *Complement:* 264.

Name	Completed	Builder	
Gazelle	1899	Ger.	By 1919 was a mine hulk.
Niobe	1899	Wes.	1926 Became Jugo-Slav *Dalmacija*.
Amazone	1901	Ger.	1931 Hulked.
Ariadne	1901	Wes.	1914 Sunk at Heligoland Bight.
Medusa	1901	Wes.	1929 Hulked.
Nymphe	1901	Ger.	1931 Sold.

Thetis	1901	Dz.Dy.	1929	Sold.
Arkona	1902	Wes.	1928	Discarded.
Frauenlob	1903	Wes.	1916	Sunk at Jutland.
Undine	1903	How.	1915	Torpedoed by E19 off Trelleborg.

Amazone and *Nymphe* were rebuilt in 1925 with raked bows in place of the extended rams so characteristic of all these ships.

LIGHT CRUISERS

Named after German towns, the classes of this large group differed as follows:

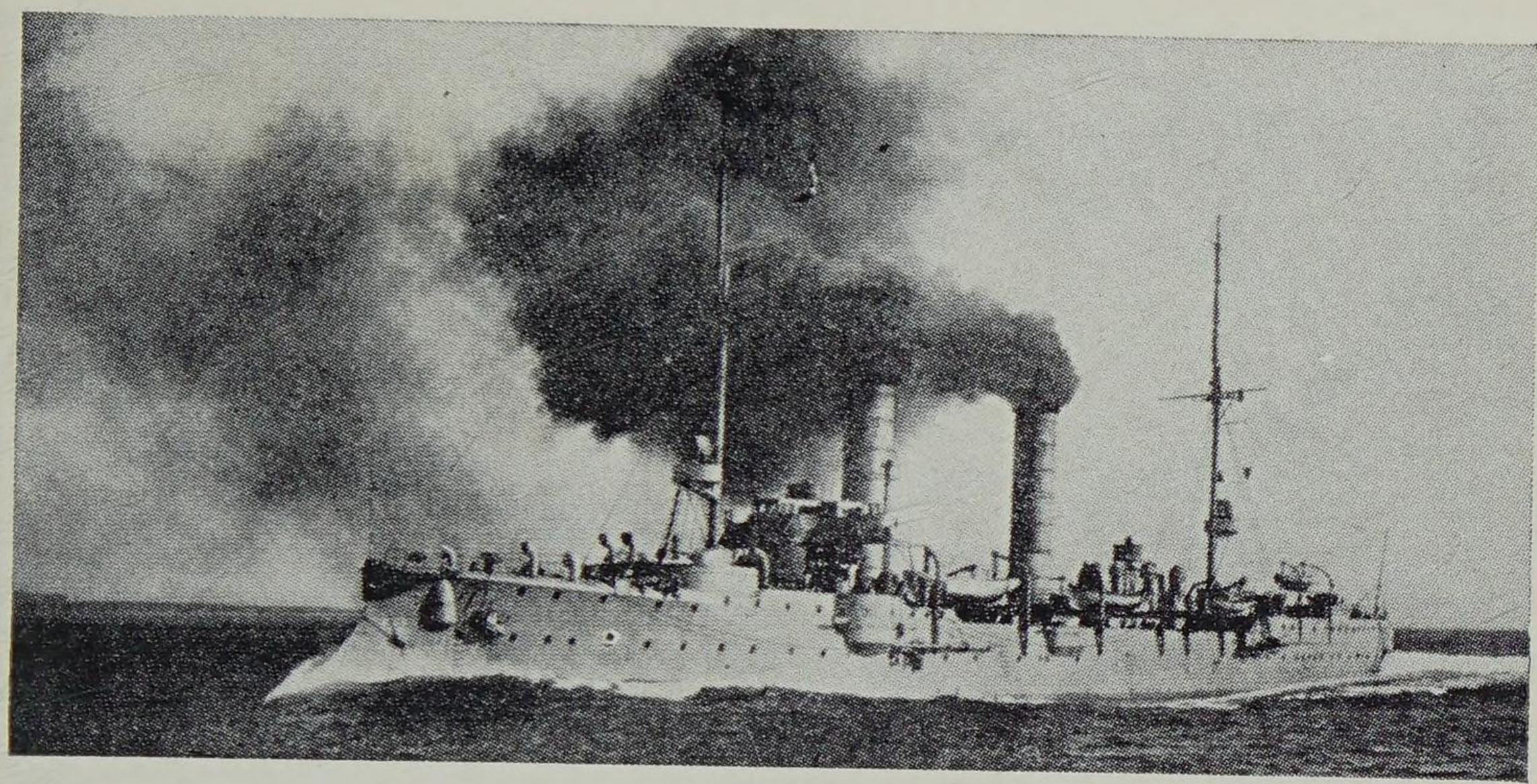
Class	*Funnels*	*Bows.*
1. *Bremen*	3, tall, pronounced rake	Extended Ram
2. *Leipzig*	3, tall	,, ,,
3. *Stettin*	3, tall, first two closer together	Ram.
4. *Koenigsberg**	3, tall (3—4.1 in. guns on each beam)	,,
5. *Dresden**	,, (3 ,, ,, ,, ,, ,,)	,,
6. *Kolberg*	,, (4 ,, ,, ,, ,, ,,)	,,
7. *Breslau*	4, medium outer casings	Raked
8. *Karlsruhe*	4, lower outer casings	,,
9. *Elbing*	3, (first raised), high outer casings	Straight stem
10. *Bremse*	3, tall, pronounced rake.	Clipper
	All below with low outer casings.	
11. *Regensburg*	3, first circular	Raked
12. *Frankfurt*	3, second circular and cased to top	,,
13. *Koenigsberg* (2)	3, (first raised), first circular	,,
14. *Dresden* (2)	3, (first raised), second circular	,,

*These ships could be distinguished by their steampipes:—*Koenigsberg*, abaft funnels. *Dresden*, at sides of funnels. *Emden*, concealed in casings. In Nos. 11-14, the term "circular" indicates that the other funnels were oval. When seen broadside on all funnels would appear equal but when seen from a quarter, as is frequent, the circular funnel appeared larger than the others. In the above table strict chronological order has not been kept in order to clarify differentiation.

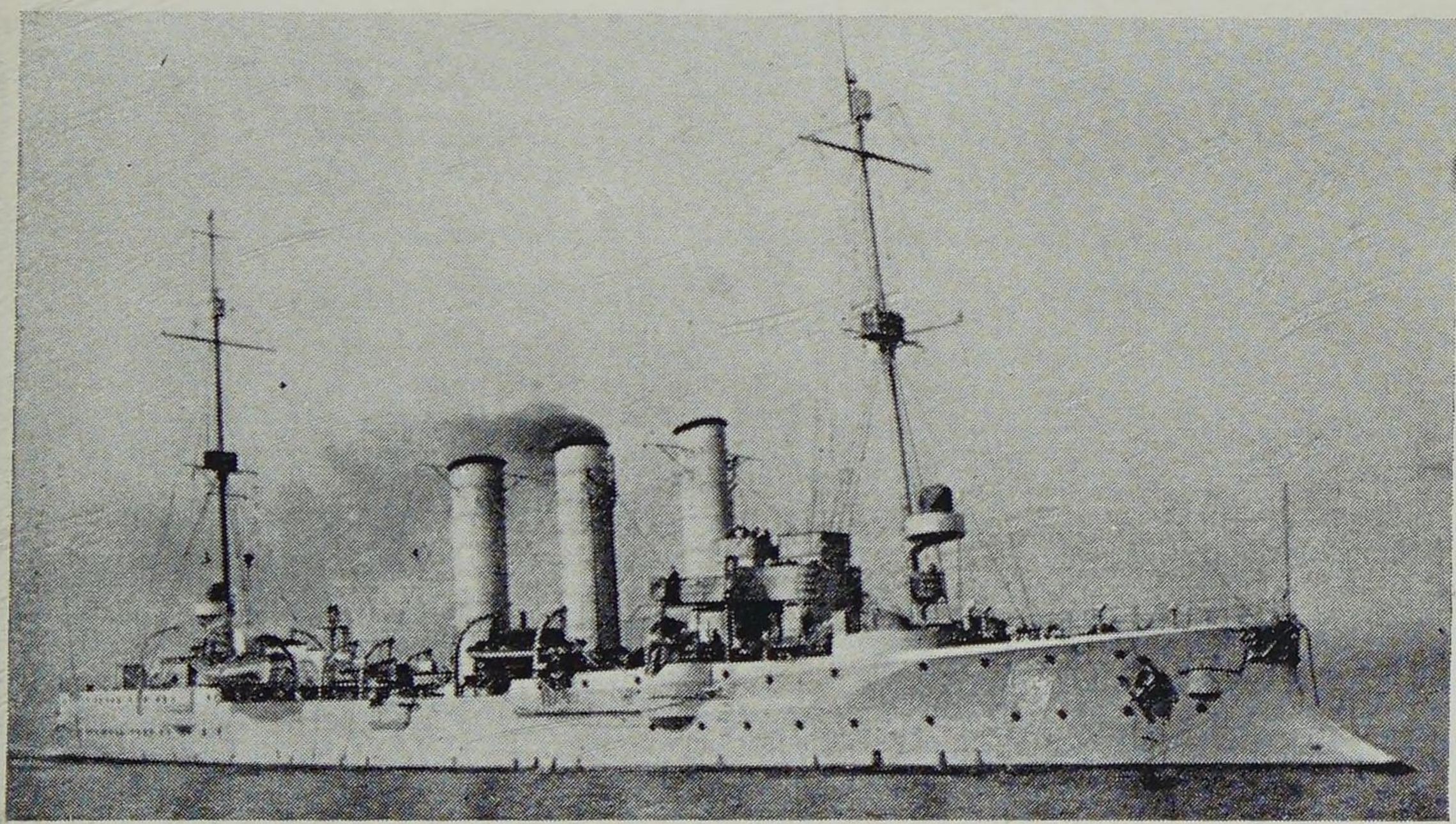
BREMEN CLASS

Length: 364½ ft. *Beam:* 43⅓ ft. *Displacement:* 3,250 tons.
Triple expansion (3-cyl.). 2 screws. 11,000 h.p. 23 knots.
(*Luebeck* had turbines and 8 screws).
Guns: 10—4.1 in., also smaller. *Torpedo tubes:* 2—17.7 in.
Armour: Deck 2 in. *Complement:* 320.

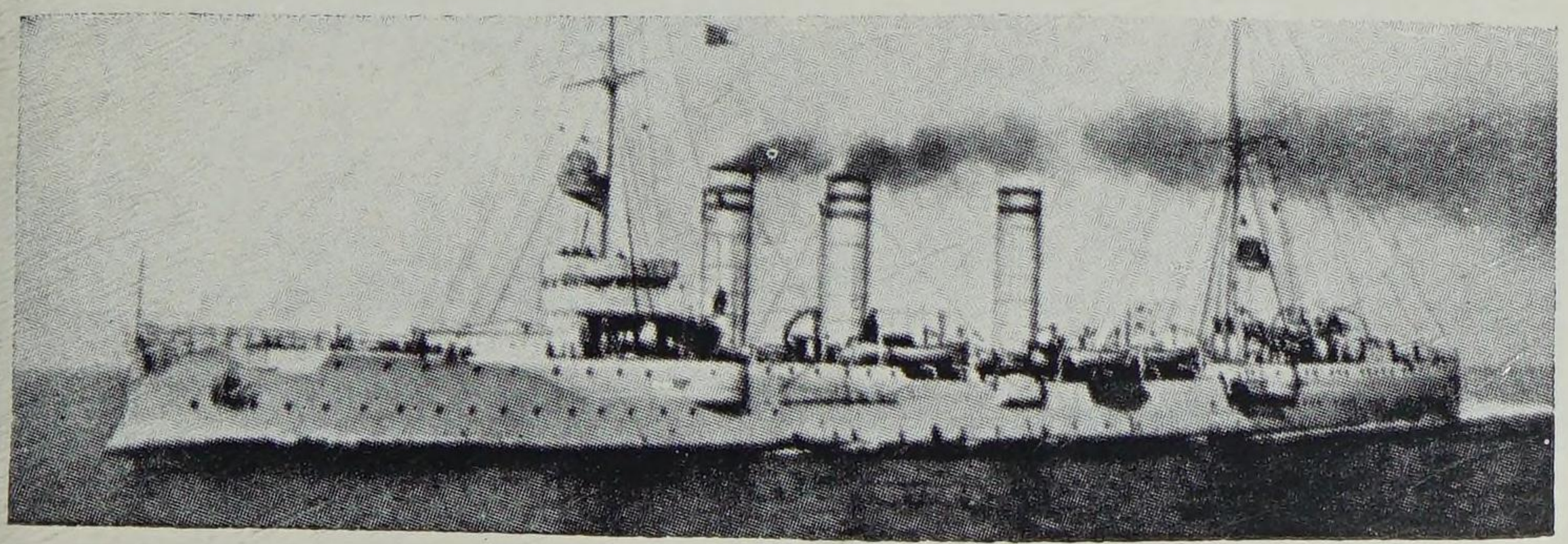
Name	*Completed*	*Builder*		
Berlin	1904	Dz.Dy.	1935	Accommodation Ship.
Bremen	1904	Wes.	1915	Torpedoed in Baltic.
Hamburg	1904	Vul(S).	1936	Accommodation Ship.
Luebeck	1904	Vul(S).	1920	Assigned to Britain for scrap
Muenchen	1905	Wes.	1920	Assigned to Britain for scrap



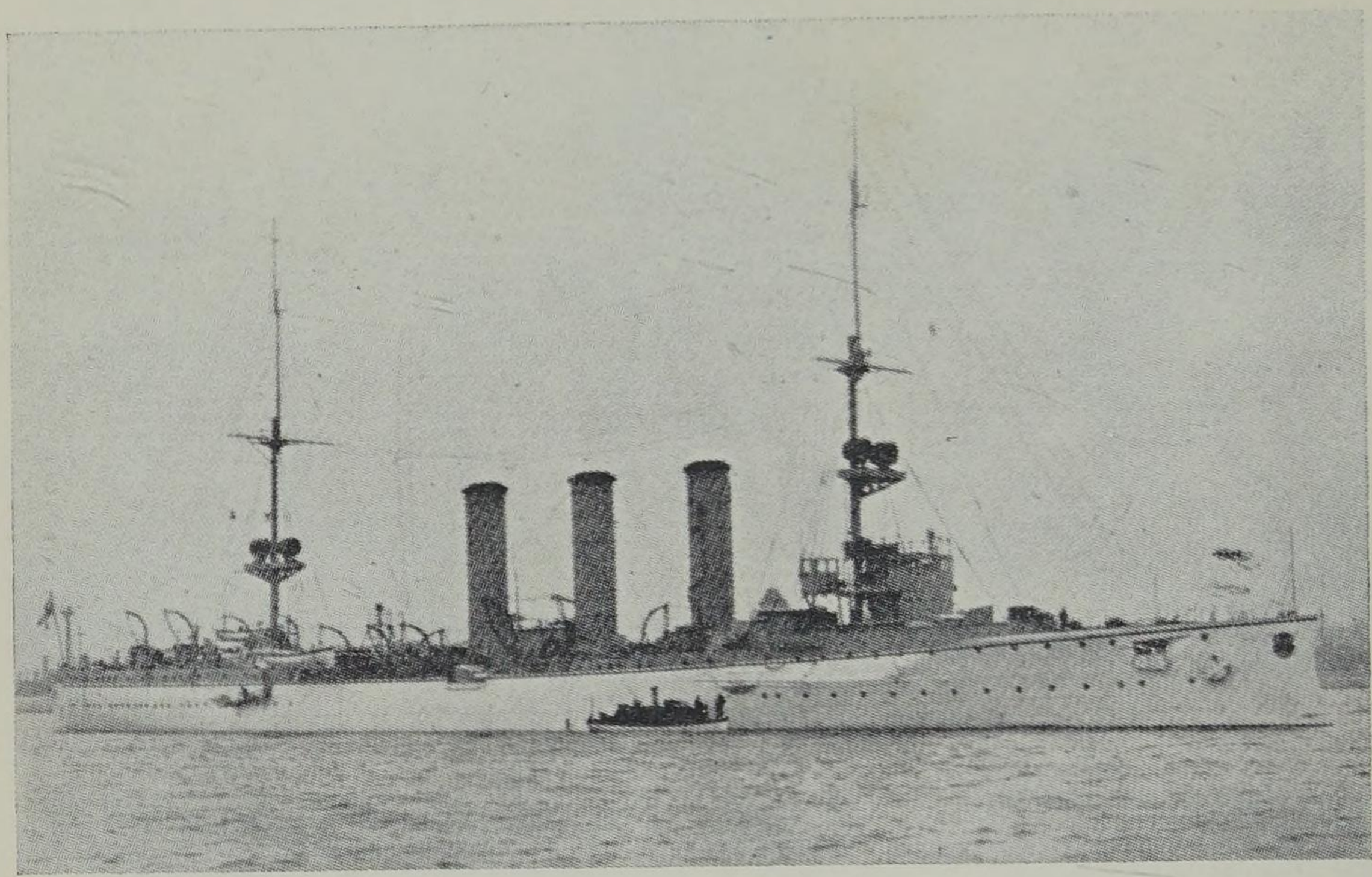
S.M.S. *Undine.*



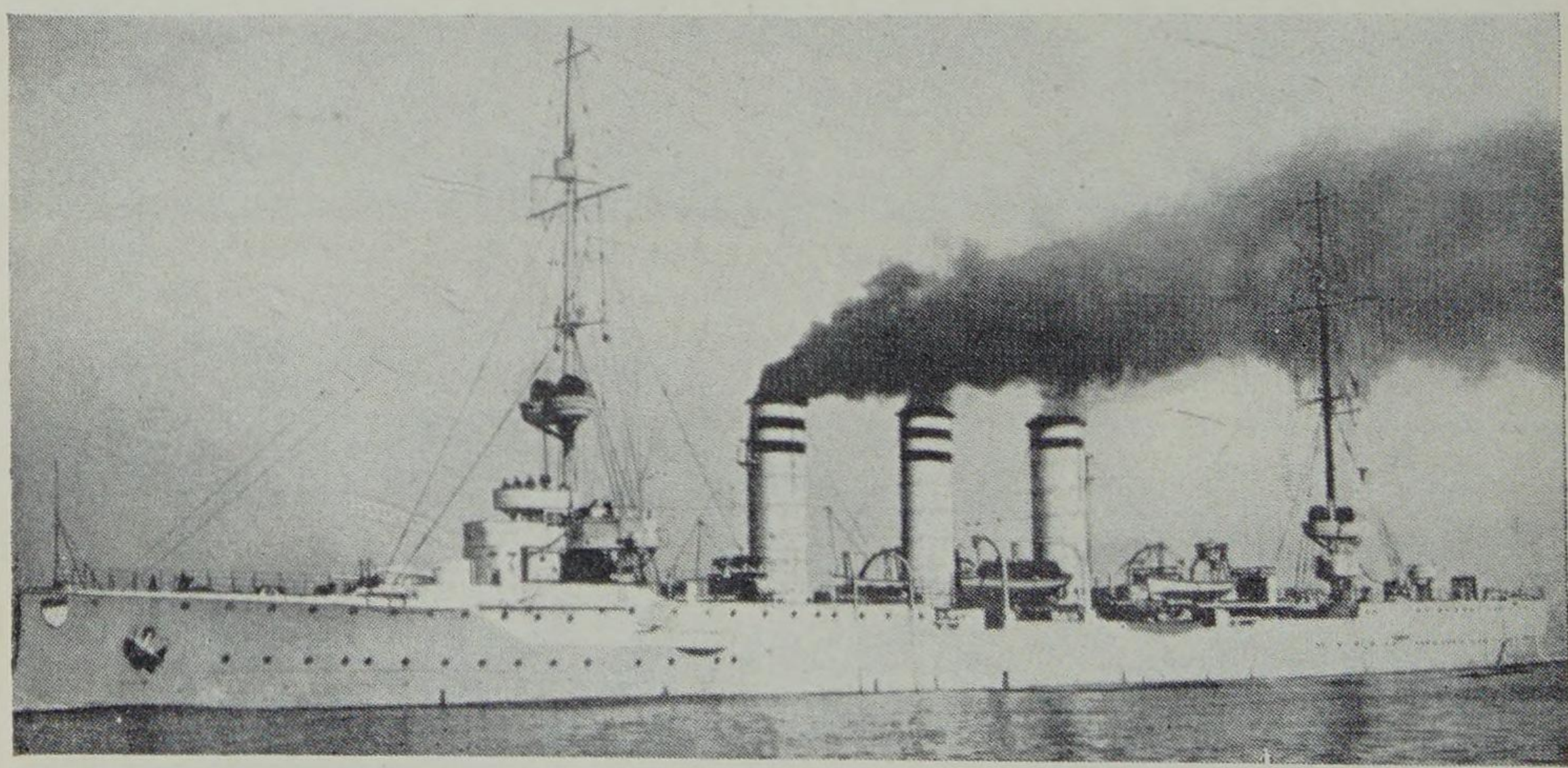
S.M.S. *Bremen.*



S.M.S. *Stettin.*



S.M.S. *Emden.*



S.M.S. *Koeln.*

Berlin and *Muenchen* were at Jutland, 1916. Before being lost in 1915, *Bremen* had been altered, her funnels having outer casings. *Luebeck* and *Berlin* were rebuilt with raked bows in 1917 and 1924 respectively.

LEIPZIG CLASS

As above with different funnels and minor differences.

Name	Completed	Builder		
Danzig	1907	Dz.Dy.	1920	Assigned to Britain for scrap
Leipzig	1906	Wes.	1914	Sunk at Battle of the Falklands.

S.M.S. KOENIGSBERG

Length: 378¼ ft. *Beam:* 43¾ ft. *Displacement:* 3,400 tons.
Triple expansion (3-cyl). 2 screws. 13,200 h.p. 23.5 knots.
Guns: 10—4.1 in., also smaller. *Torpedo tubes:* 2—17.7 in.
Armour: Deck 2 in. *Complement:* 350.

Name	Completed	Builder	
Koenigsberg	1907	K.Dy.	Sunk in Rufiji River (E. Africa).

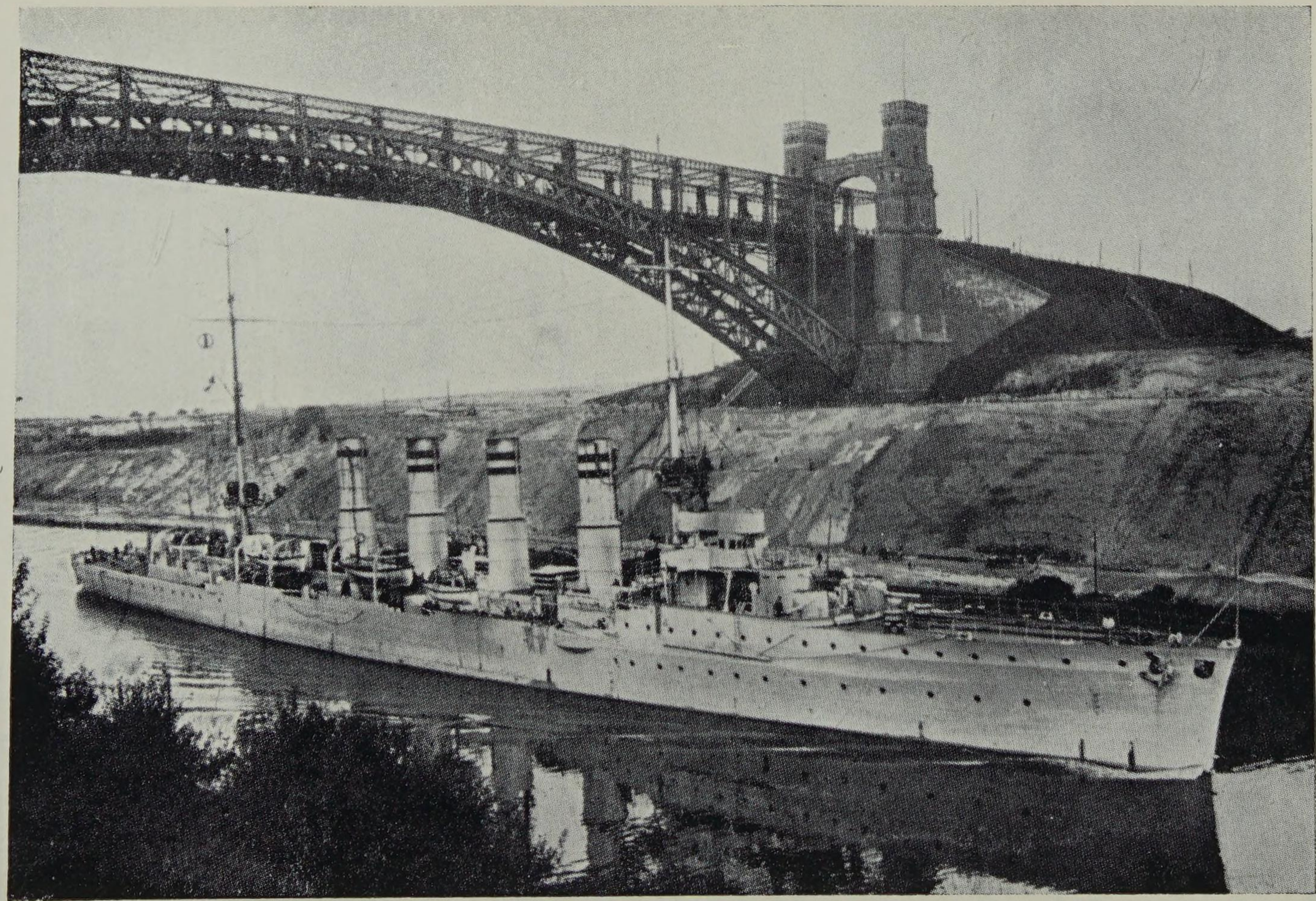
Sank H.M.S. *Pegasus* at Zanzibar in Sept. 1914. Blockaded in Rufiji River Oct. 1914 and sunk by Monitors July 1915.

STETTIN CLASS

Length: 385 ft. *Beam:* 43⅔ ft. *Displacement:* 3,550 tons.
Triple expansion (4-cyl.). 2 screws. 13,200-21,000 h.p. 23.5-25.5 knots.
(*Stettin* turbines and 4 screws).
Guns: 10—4.1 in., also smaller. *Torpedo tubes:* 2—17.7 in.
Armour: Deck 2 in. *Complement:* 350.

Name	Completed	Builder		
Nuernberg	1908	K.Dy.	1914	Sunk at Battle of the Falklands.
Stettin	1908	Vul(S).	1920	Assigned to Britain for scrap
Stuttgart	1908	Dz.Dy.	1920	Assigned to Britain for scrap

Stettin and *Stuttgart* were at Jutland 1916. In 1918 *Stuttgart* was altered to carry seaplanes and 108 mines.



DRESDEN CLASS

Length: 388 ft. *Beam:* 43½ ft. *Displacement:* 3,650 tons.
Dresden: Turbines, 4 screws. *Emden* T.E. (3-cyl.), 2 screws. 14,000 h.p. 24.5 knots.
Guns: 10—4.1 in., also smaller. *Torpedo tubes:* 2—17.7 in.
Armour: Deck 2 in. *Complement:* 360.

Name	Completed	Builder		
Dresden	1909	B & V.	1915	Scuttled at Juan Fernandez.
Emden	1908	Dz.Dy.	1914	Sunk at Cocos. Is. by H.M.A.S. *Sydney*.

Dresden was disabled at the Battle of the Falklands, escaped and was later scuttled to avoid capture.

KOLBERG CLASS

Length: 428 ft. *Beam:* 46 ft. *Displacement:* 4,350 tons.
Turbines. 4 screws (*Mainz* 2). 20,000-31,000 h.p. 25.5-27.25 knots.
*Guns:** 12—4.1 in., also smaller. *Torpedo tubes:* 2—17.7 in.
Armour: Deck 2 in. *Complement:* 380.

Name	Completed	Builder		
Augsburg	1910	K.Dy.	1920	To Japan for scrap.
Kolberg	1909	Sch.	1920	Became French *Colmar*.
Koeln	1910	Ger.	1914	Sunk at Heligoland Bight.
Mainz	1909	Vul(S)	1914	Sunk at Heligoland Bight.

**Augsburg* and *Kolberg* were altered during the war to carry 6—5.9 in., 1—3.4 in A.A., and 120 mines.

BRESLAU CLASS

Length: 455 ft. *Beam:* 43½ ft. *Displacement:* 4,550-5,100 tons.
Turbines: 3 screws (*Breslau* 4, *Strassburg* 2). 26,000-35,000 h.p. 27-30 knots.
*Guns:** 12—4.1 in. *Torpedo tubes:* 4—19.7 in.
Armour: Belt 2¾ in., deck ½ in. *Complement:* 370.

Name	Completed	Builder		
Breslau	1912	Vul(S)	1918	Mined off Imbros.
Magdeburg	1912	Wes.	1914	Destroyed by Russian Cruisers.
Stralsund	1912	Wes.	1920	Became French *Mulhouse*.
Strassburg	1912	Dz.Dy.	1920	Became Italian *Taranto*.

**Stralsund* and *Strassburg* were altered during the war to carry 7—5.9 in., 2—3.4 in. A.A. and 120 mines.

KARLSRUHE CLASS

Length: 468 ft. *Beam:* 45 ft. *Displacement:* 4,900-5,500 tons.
Turbines: 2 screws. 32,000 h.p. 27.25 knots.
Guns: 12—4.1 in. *Torpedo tubes:* 4—19.7 in.
Armour: Belt 2½ in., deck ¾ in. *Complement:* 420.

Name	Completed	Builder		
Karlsruhe	1913	Ger.	1914	Blew up (cause unknown).
Rostock	1913	How.	1916	Sunk at Jutland.

Karlsruhe destroyed by internal explosion from unknown cause 200 miles from Trinidad.

REGENSBURG CLASS

As above but with three funnels and altered during the war to carry 7—5.9 in., 2—3.4 in. A.A. guns and 120 mines.

Name	Completed	Builder		
Graudenz	1914	K.Dy.	1920	Became Italian *Ancona.*
Regensburg	1914	Wes.	1920	Became French *Strasbourg.*

Regensburg was at Jutland, 1916.

FRANKFURT CLASS

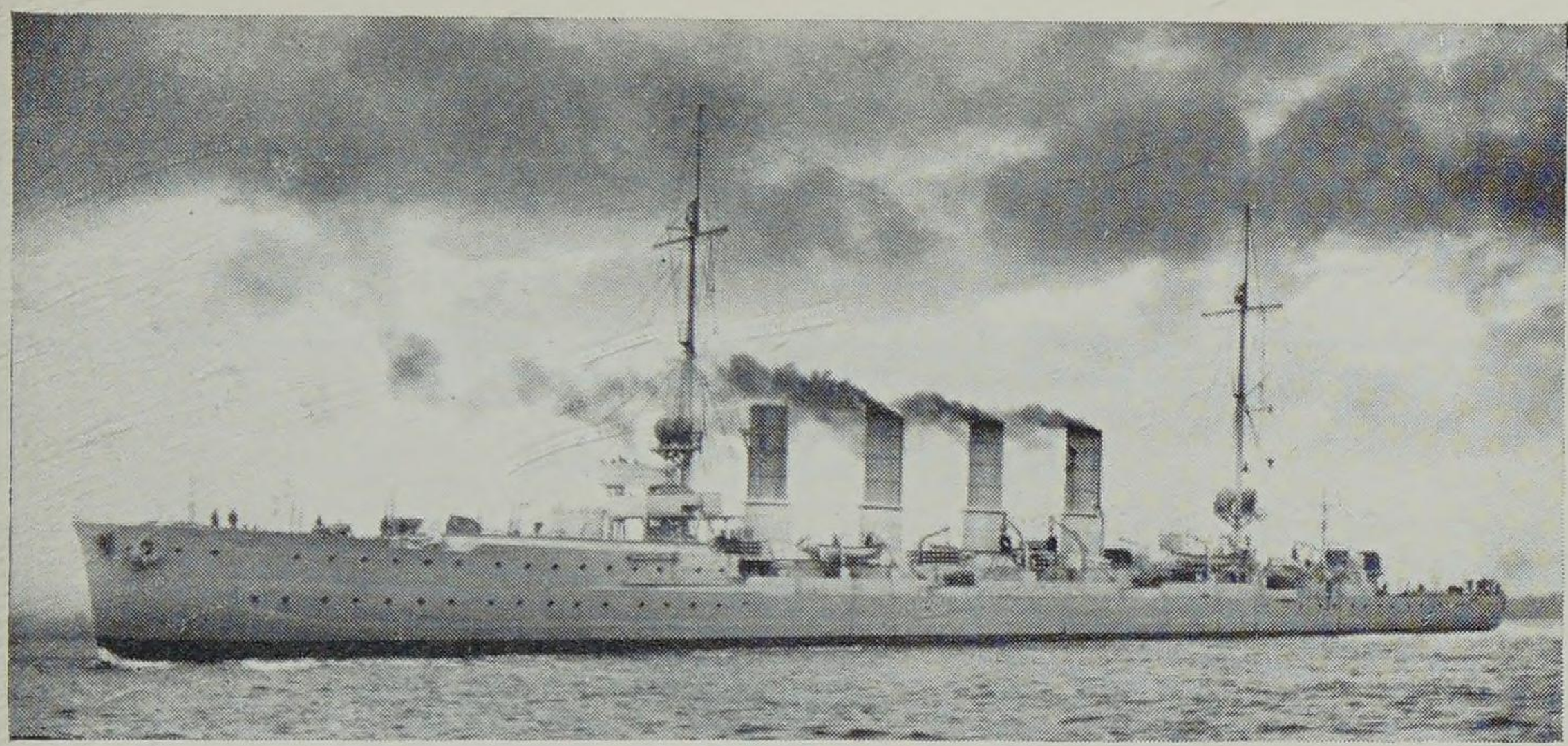
Length: 476⅔ ft. *Beam:* 45½ ft. *Displacement:* 5,120-5,400 tons.
Geared turbines: 2 screws. 45,000 h.p. 28 knots.
Guns: 8—5.9 in., 2—3.4 in. A.A. *Mines:* 120. *Torpedo tubes:* 4—19.7 in.
Armour: Belt 2½ in., deck ¾in. *Complement:* 500.

Name	Completed	Builder		
Frankfurt	1915	K.Dy.	1920	To U.S.A. for destruction.
Wiesbaden	1915	Vul(S)	1916	Sunk at Jutland.

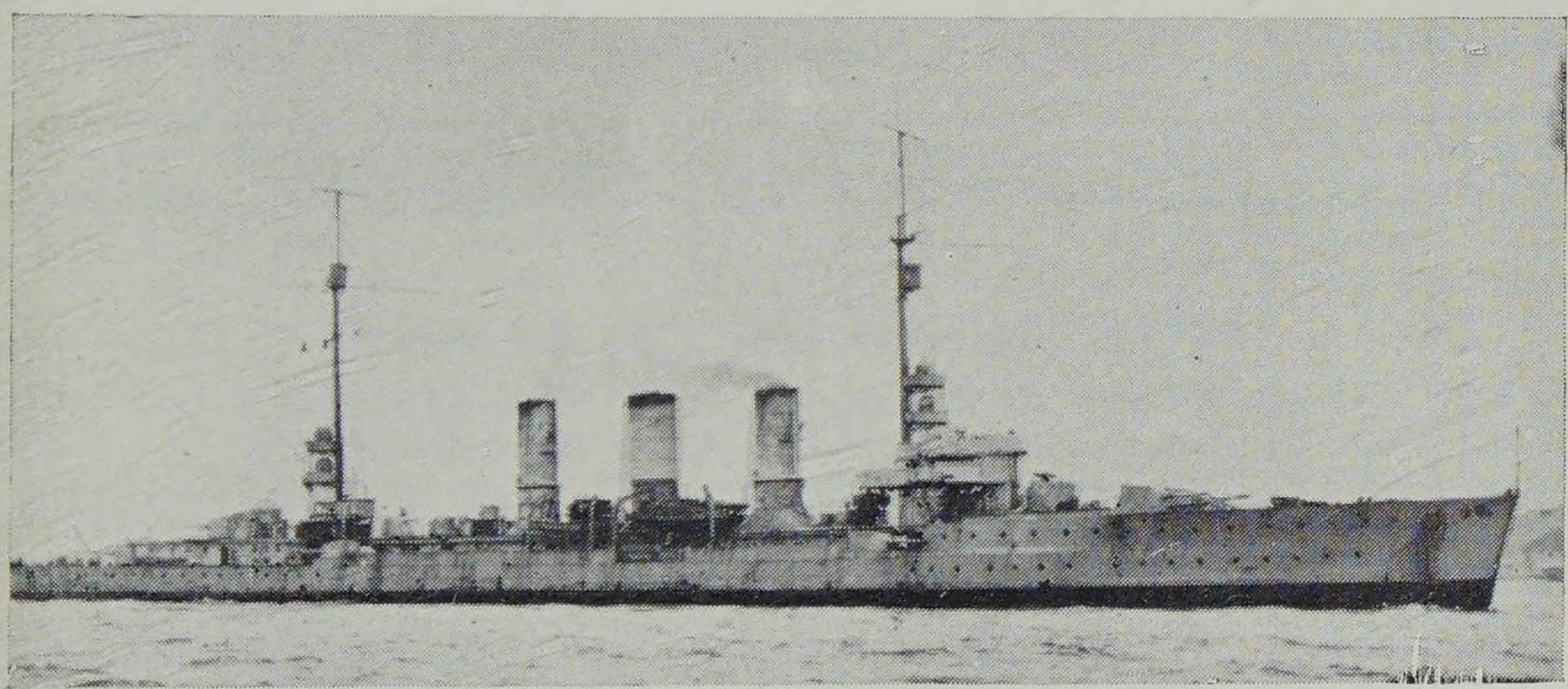
Frankfurt was at Jutland, 1916 and finally destroyed in aerial bombing tests in the U.S.A.

ELBING CLASS

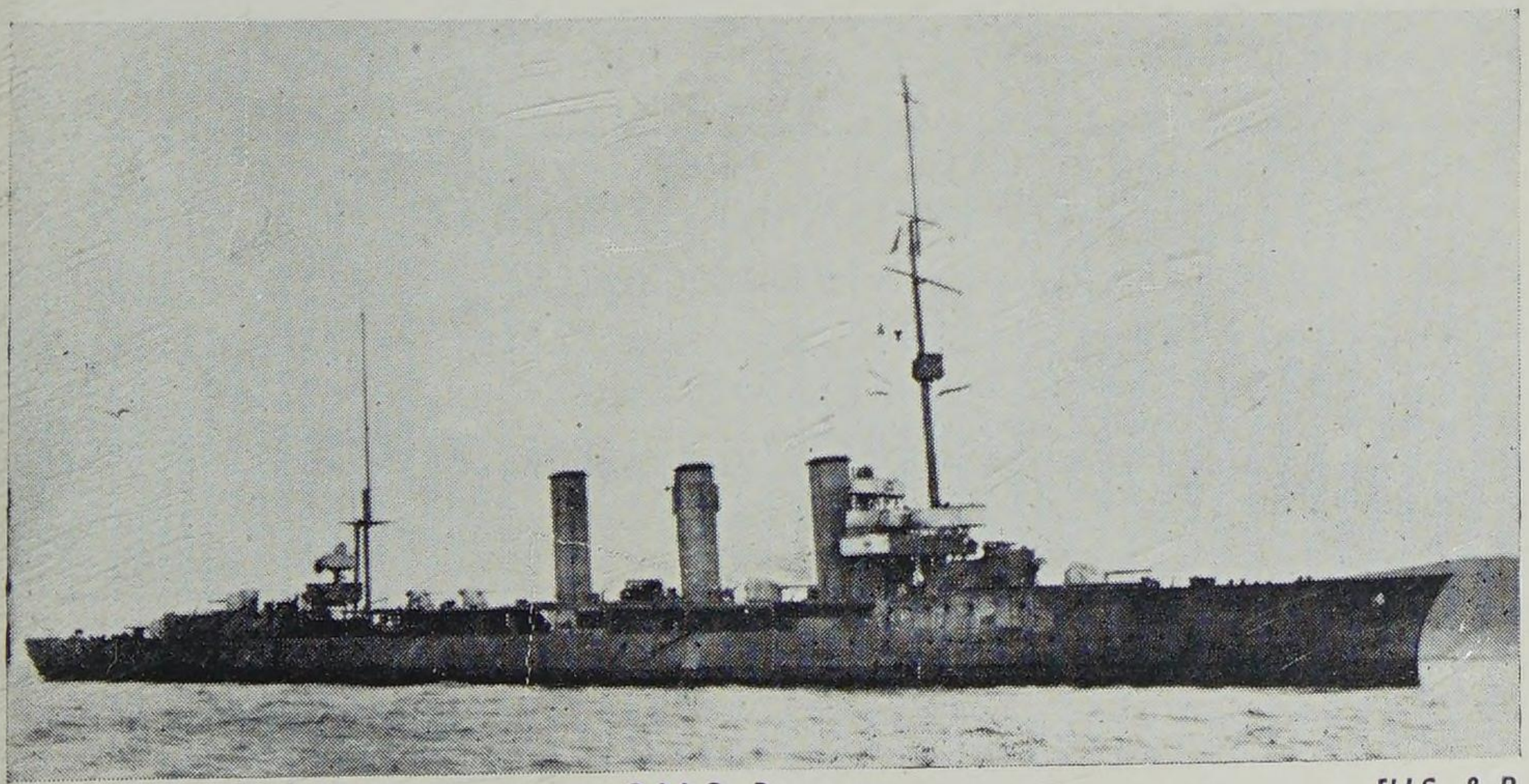
Length: 444 ft. *Beam:* 46 ft. *Displacement:* 4,350 tons.
Turbines: 3 screws. 27,400 h.p. 27.5 knots.
Guns: 8—5.9 in., 2—3.4 in. A.A. *Mines:* 120. *Torpedo tubes:* 2—19.7 in.
Armour: Deck 3 in. *Complement:* 370.



S.M.S. *Rostock.* [*H.S. & R.*



S.M.S. *Frankfurt* [*H.S. & R.*



S.M.S. *Bremse.* [*H.S. & R.*

ELBING CLASS

Name	Completed	Builder		
Elbing	1915	Sch.	1916	Sunk at Jutland.
Pillau	1915	Sch.	1920	Became Italian *Bari*.

Originally ordered by Russia, both ships were at Jutland 1916.

BREMSE CLASS

Length: 460½ ft. *Beam:* 44 ft. *Displacement:* 4,000 tons.
Turbines: 2 screws. 46,000 h.p. 34 knots.
Guns: 4—5.9 in., 2—3.4 in. A.A. *Mines:* 360. *Torpedo tubes:* 2 or 4—19.7 in.
Armour: Belt 1½ in., deck ⅝in. *Complement:* 480.

Name	Completed	Builder		
Bremse	1916	Vul(S)	1919	Scuttled at Scapa Flow.
Brummer	1916	Vul(S)	1919	Scuttled at Scapa Flow.

The first fast " minelayer-cruisers " to be designed as such. Their mainmast could be lowered in order to masquerade as British cruisers of the " Arethusa ' class.

KOENIGSBERG (2) CLASS

Length: 496⅔ ft. *Beam:* 47 ft. *Displacement:* 5,300-6,150 tons.
Turbines: (*Karlsruhe*, geared). 2 screws. 45,000 h.p. 28.5 knots.
Guns: 8—5.9 in.. 2 or 3—3.4 in. A.A. *Mines:* 120. *Torpedo tubes:* 4—19.7 in.
Armour: Belt 2½ in., deck ¾ in. *Complement:* 500.

Name	Completed	Builder		
Emden (2)	1915	Wes.	1920	To France for destruction.
Karlsruhe (2)	1916	K.Dy.	1919	Scuttled at Scapa Flow.
Koenigsberg (2)	1916	Wes.	1920	Became French *Metz*.
Nuernberg (2)	1916	How.	1920	To Britain for destruction.

DRESDEN (2) CLASS

As above but second funnel circular instead of first, some having geared turbines

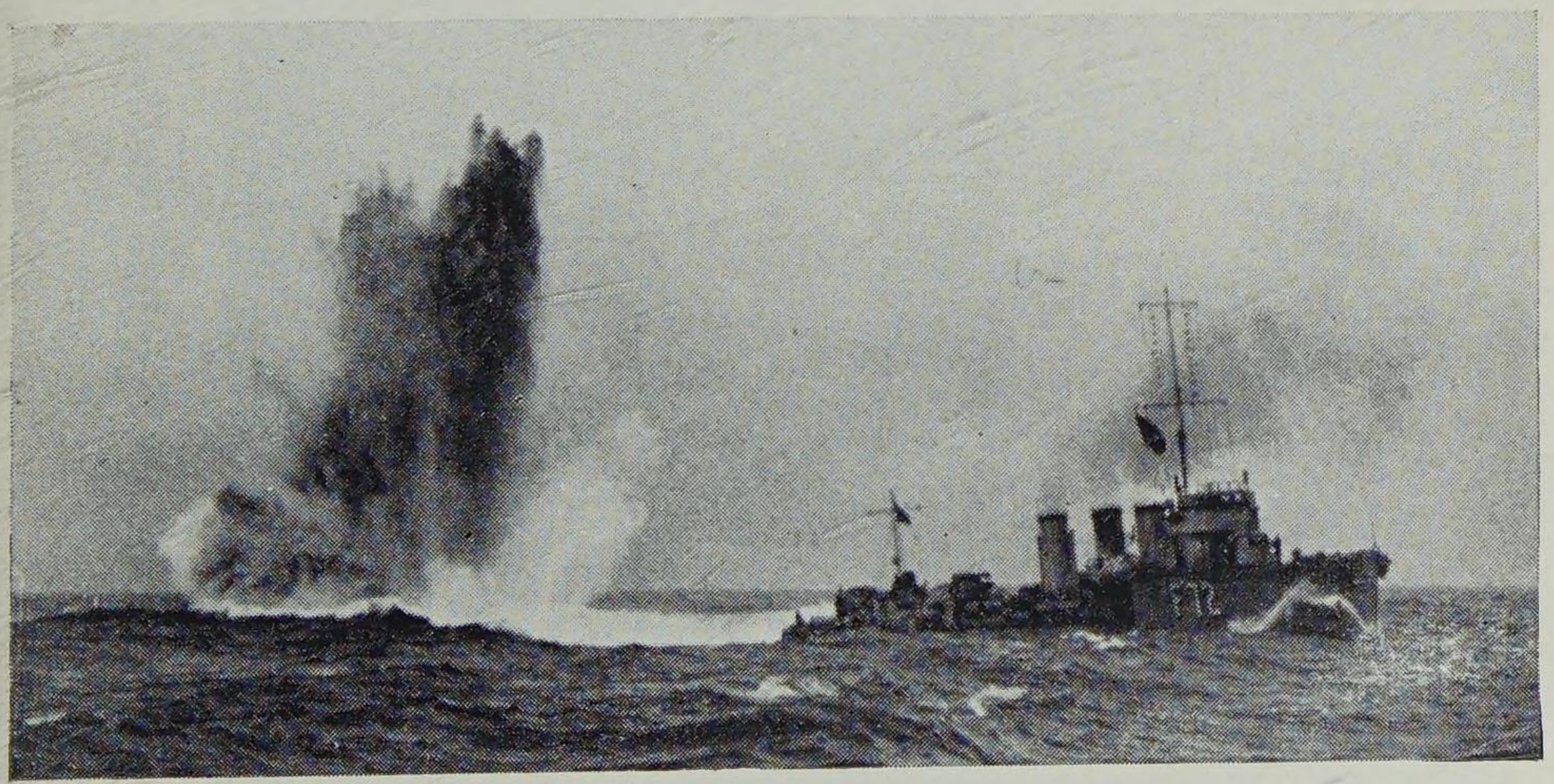
Name	Completed	Builder		
Dresden (2)	1918	How.	1919	Scuttled at Scapa Flow.
Koeln (2)	1918	B. & V.	1919	Scuttled at Scapa Flow.

Sister ships: *Frauenlob* (2), *Leipzig* (2), *Magdeburg* (2), *Rostock* (2) and *Wiesbaden* (2 launched, but scrapped before completion. Three more were scrapped on the stocks.

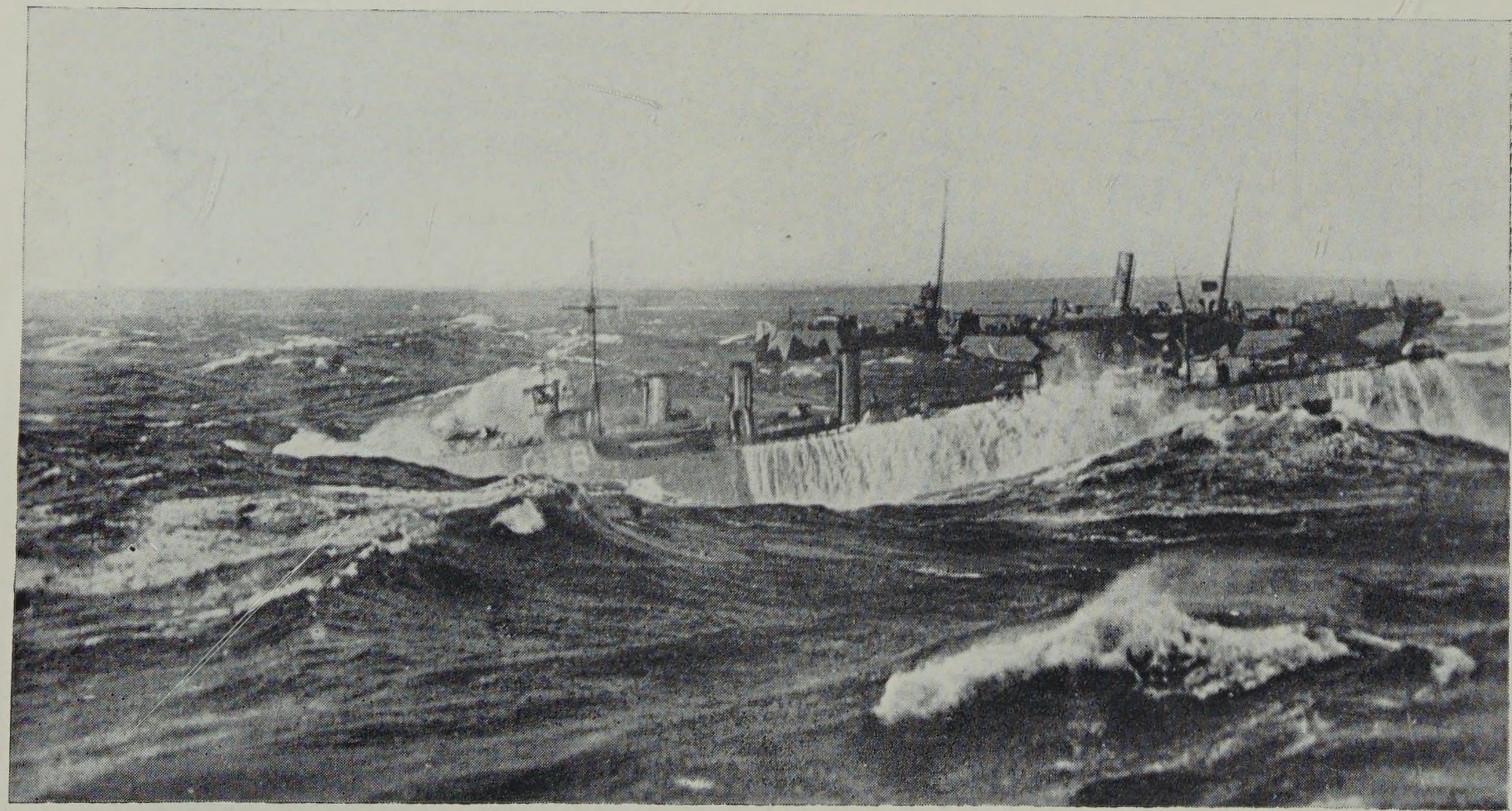
SECTION THREE

DESTROYERS

(British and German)



H.M.S. *Tempest* (Admiralty 'R' Class), dropping depth charges. [*I.W.M.*



H.M.S. *Peyton* (Admiralty ' M ' Class) in heavy weather. [N.P.C

BRITISH DESTROYER DEVELOPMENT

1893 – 1920

ONCE it had been decided to build Torpedo Boat Destroyers (T.B.D's) as a counter measure against attack by Torpedo Boats, the Admiralty boldly ordered 42 of them, giving fourteen different builders great freedom in design. Delivered in 1893-95, all the ships had turtle-back forecastles, the same armament, triple expansion engines and a contract speed of 27 knots. Apart from this, designs differed widely, as in boilers for example, where seven different water-tube patterns were installed, whilst six ships had the locomotive type with two funnels close together. These six were later reboilered and given funnel arrangements similar to other ships.

In 1895 to 1902 there followed sixty 30-knot " turtle-backs ", somewhat larger and with horse power increased 50% to 6,000. Parsons steam turbines were tried on three of them, one of which, H.M.S. Viper, reached the then enormous speed of 35.5 knots at 12,000 H.P. with eight screws on four shafts. In the other ships, with two 3,000 H.P. triple expansion engines running at 400 r.p.m., the vibration when out of phase was spoken of with awe by those who experienced it. Hand firing the white hot furnaces on a vibrating and heaving stokehold floor was no sinecure either.

In fact too much had been sacrificed to high speed. The ships were structurally weak for the power developed and almost buried themselves in heavy weather. In the " River " group of 1903-5 sea-worthiness was given priority, as shown by their high forecastles (which the Germans had adopted in 1899). Although tonnage was raised to 550, horse power was only increased to 7,000, with speed reduced to 25½ knots. This speed, however, could be maintained in a seaway, whereas that of the turtle-backs was apt to fall off. Coal capacity and radius of action were greatly increased. H.M.S. Eden and the two later replacements were the only ships to have turbines. Design was much more uniform, with two funnels or two close pairs. The armament was increased to 4-12 pdrs, smaller guns having been found to be ineffective.

In the next group, the " Tribals " of 1907-9, a great leap forward was made, as these were the destroyer equivalents of the Dreadnought. Size was almost doubled, speed raised to 33-36 knots with oil fuel and turbines, and 4 inch guns were mounted. Builders of these ships, known at first as " ocean-going destroyers ", were once again given a very free hand, there being 8 distinct varieties in the 12 vessels. But even the " Tribals " were small fry compared to the special ship, H.M.S. Swift, built at the same time, as a leader for the fastest destroyers. A quadruple screw ship of 1,825 tons, her turbines could develope 50,000 H.P. giving her a speed approaching 40 knots. During the war she was extensively altered, her tonnage being raised to 2,200 and her two forward 4 in. guns replaced by one 6 in. She was the only British destroyer to carry such a gun and her tonnage was not exceeded in the Navy until 1937.

Uniformity had, by 1908, become imperative and each year a class was laid down to form a complete flotilla of 16-24 ships. The first of these were the 900-ton " Basilisk " (G) class of 1909-10. Their speed of 27-28 knots was on the low side, but they were good sea boats. Coal-burning was reverted to, as adequate supply of oil fuel in war time then seemed uncertain. In 1910-11 the rather smaller " Acorn " (H) class of 780 tons appeared. These were oil-burners (as were all future classes) and the first to mount 21 in. torpedo tubes. All twenty ships were built to one design. They took on average 18 months to

build, a reply no doubt to the German claim to be building destroyers in 12-15 months. The two-funnelled " Acheron " (I) class of 1911-12 consisted of 14 standard ships plus 6 with more powerful machinery in which new features were introduced. Two of them were superheated and another two had geared turbines. As a result of the diversion of three ships to Australia, three more were built, with their H.P. further increased to 20,000. They were the prototypes of the later Yarrow variants of Admiralty standard designs.

The 900-ton " Acasta " (K) class of 1912-13 consisted of 12 standard ships, 6 with altered disposition of armament whilst two were prototypes of the succeeding " L " class. Three 4 in. guns (25 pdr.) were mounted, the 12 pdr. (3 in.) being in its turn abandoned as ineffective. One ship (H.M.S. Hardy) was designed to carry an additional diesel engine for cruising, but it appears that this was not installed. In the period 1911-15 standard ships were usually triple-screw whilst the specials were twin-screw. The last pre-war class, the 1,000-ton " L " class of 1913-14, consisted of 6 two-funnelled and 16 three-funnelled ships, the latter being similar to the later Thornycroft variants of standard designs. Three improvements were incorporated: raked, in place of vertical stems, twin torpedo tubes and a " bandstand " for the 4 in. gun amidships. Twin tubes were not new as they had been mounted on some torpedo boats (both British and German) in the 1880's.

Originally the usual variety of names had been allotted to the " L " class, but towards the end of 1913 a new destroyer classification was introduced and all were given names beginning with " L ". Earlier ships were then classified as below, the class letter being painted up on the bows and funnel. (For the earlier ships with their many differences, " groups " would have been a more apt description than " classes ").

A.	Surviving 27-knot " turtle-backs "	
B.	30-knot " turtle-backs " with 4 funnels	
C.	,, ,, ,, 3 ,,	
D.	,, ,, ,, 2 ,,	
E.	River class	
F.	Tribal class	
G.	Basilisk class	
H.	Acorn class	
I.	Acheron class	(No J. class)
K.	Acasta class	

As regards individual ship recognition, funnel bands (red and white) had been introduced on the " H " and " I " classes. On the 20 " H " class they were difficult enough to make out on the 2nd and 3rd funnels but, when the 20 " K " class of similar appearance were built, the system clearly became impracticable. (Funnel bands have been used before and since as *flotilla* insignia.) Shortly after war began all destroyers were given pennant numbers painted up on bows and stern. With flags superior D. F. G. and H, 120 numbers were available under each (D00-D99, D0A-D9A, DA0-DA9, etc.). Thus 480 identity numbers were available which could be, and were, changed at will to confuse the enemy.

At the outbreak of war both British and Germans took over ships destined for other Powers. On the British side twelve such destroyers were building in the U.K.: four 1,700-ton leaders for Chile, four variants of the " M " class for Greece and four for Turkey. These ships were given British names and are referred to as the " Broke " class leaders, the Greek " M's " and the " Talisman " class, respectively.

At the same time the " M " class were coming into service, generally simila to the " L " class but with a new three-funnel arrangement (code 32). Three variants from the Admiralty standard were permitted:—

(1) Hawthorn Leslie with 4 funnels (code 44)
(2) Thornycroft ,, 3 ,, (code 35)
(3) Yarrow ,, 2 ,, (code 22)

Large emergency orders were placed for " M's ", henceforth only Thornycroft and Yarrow variants being included. These had the reputation of being somewhat faster than the standards, some of them being the first to reach 40 knots on official trials. Including the ex-Greek ships, 112 " M " class were built. As there were already many destroyers in existence with " M " names the class had soon to be extended to " N's ", " O's " and " P's ", with a few " R's " and " T's ". Broadly speaking, therefore, the strict naming system broke down. The " M's " were followed by 44 " R " class (" R ", " S " and " T " names), very similar ships but with geared turbines, higher speed and distinguishable by the " bandstand " mounting for the after 4 in. gin.

The absence so far of Flotilla Leaders (except H.M.S. Swift) will have been noted and the purchase of the four Chilean ships mentioned above was most timely. Such ships should be larger than the rest of the flotilla, with extra accommodation for a senior officer and his staff. For the slower " River " class the small " Scout " class light cruisers (see Part 2) were available as Leaders, but the first leader *class* (" Marksman ") was only begun just before the war. These seven ships, followed by six " later Marksman " class, came into service in 1915-16.

By 1917 destroyer construction had been resolved to three distinct types, to which all later ships were confined:—

(1) 1,000-ton ships; 3-4 in. guns.
Based on the modified " R " class, which was a compromise between Admiralty and Yarrow designs.
11 Modified " R " class (" T ", " U " names). 67 " S " class (" S ", " T " names).

(2) 1,300-ton ships; 4-4 in. guns.
Larger class with superimposed guns and triple torpedo tubes.
51 " VW " class (" V ", " W " names).

(3) 1,750-ton Leaders; 5-4.7 in. guns.
5 Thornycroft Type. 8 Admiralty Type.

The last two groups provided the basis for post-war development.

After the war, during which the " M " class had seen very hard service, this class together with all earlier ships were written off. Subsequent disarmament and reduction of the fleet resulted in the scrapping of further ships so that, by the outbreak of World War II, only the following 1918 destroyers were in existence:—

1 Admiralty " R " class (H.M.S. Skate).
11 Admiralty " S " class, mostly used as minelayers.
Most of the " VW " class, many of them re-armed as Escort vessels.
8 Leaders.

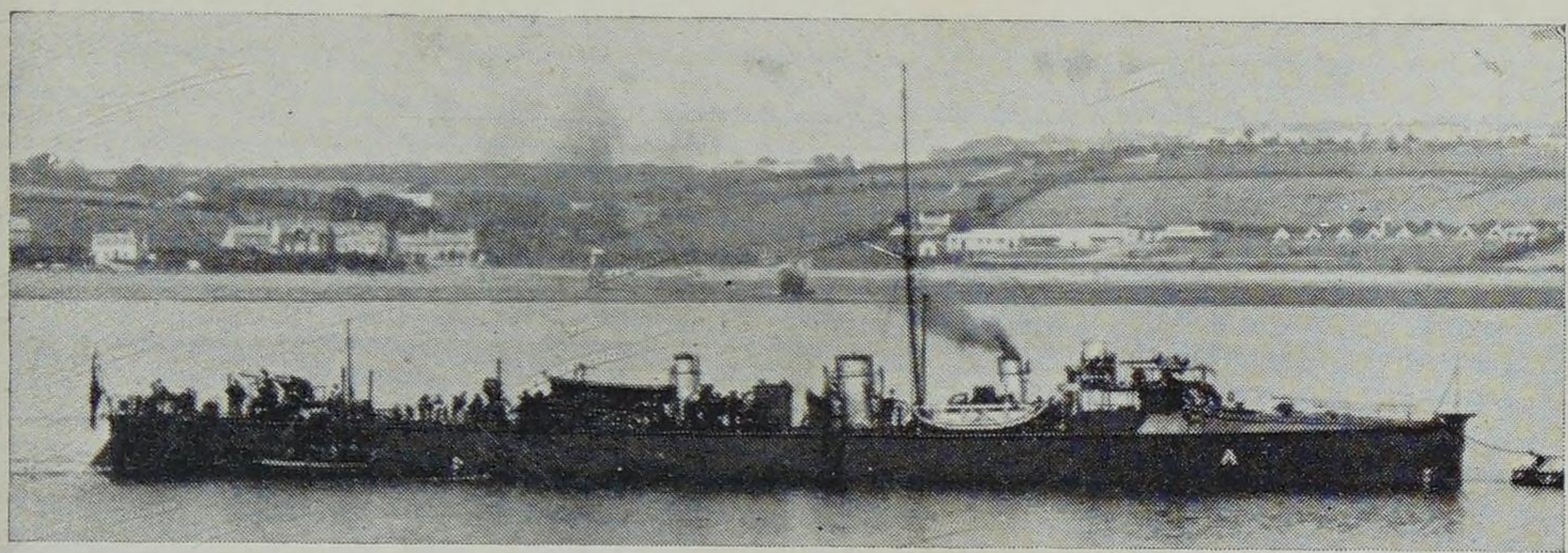
During the 1914-18 war destroyers and fast light cruisers did most of the minelaying. The old cruisers and other ships originally fitted for the purpose were far too slow to reach their objective, lay mines and get clear within the hours of darkness. The effectiveness of this weapon is shown by the fact that 55 of the destroyers in this book were sunk by mines and many others severely damaged. British ships were also supplied with depth charges which, with the later development of Asdic (for sound detection under water), proved the most effective anti-U-boat measure.

BRITISH DESTROYER CLASSES

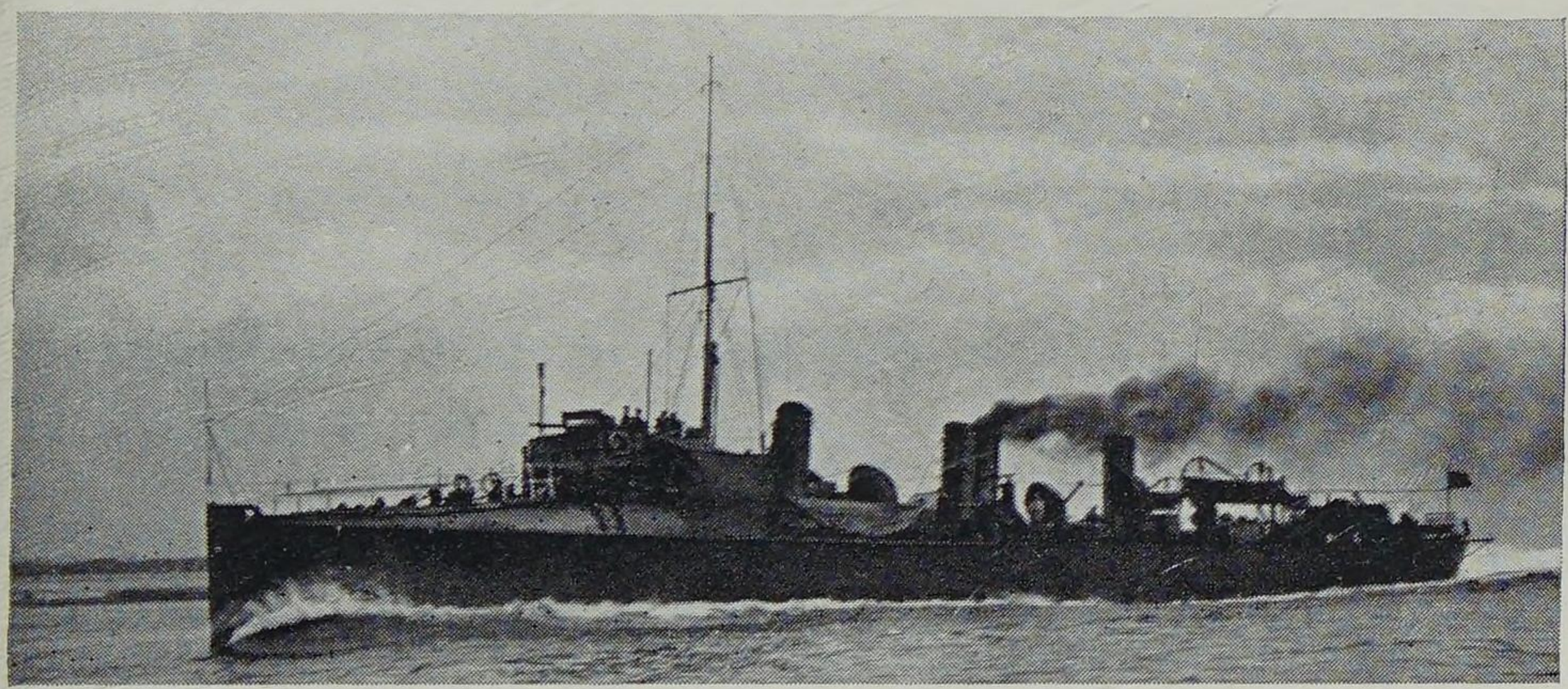
A CLASS (27-knot "Turtle-Backs")

Length: 180—206 ft. *Beam:* 18½—20½ ft. *Displacement:* 220—300 tons.
Triple expansion. 2 screws. 3,100—4,850 h.p. 27—28 knots.
Guns: 1—12 pdr., 3 or 5—6 pdr. *Torpedo tubes:* 2—18 in.
Complement: 45—60.

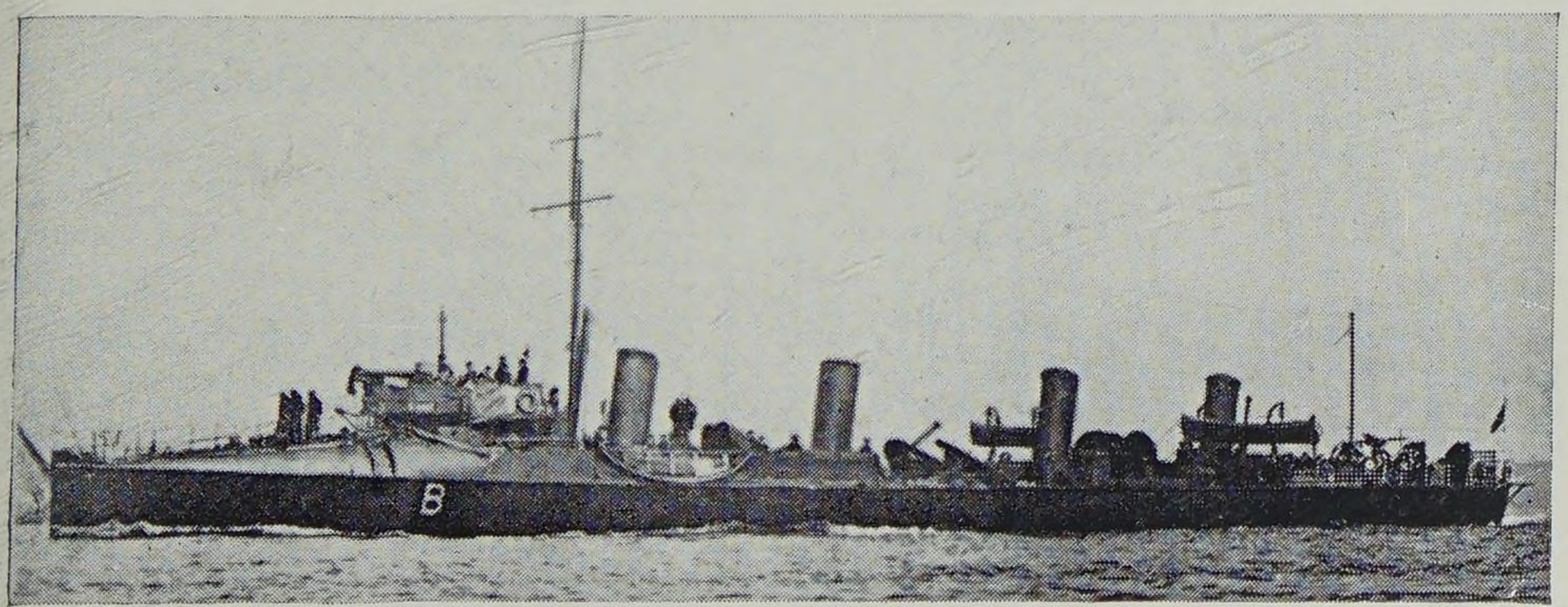
Name	Funnel Code	Completed	Builder		
Ardent	21	1894	T	1911	Sold.
Banshee	41m	1894	CL	1912	Sold.
Boxer	21	1894	T	1918	Sunk, collision in the Channel.
Bruiser	21	1895	T	1914	Sold.
Charger [1]	35m	1894	Y	1912	Sold.
Conflict	33	1894	W	1920	Scrapped.
Contest	41m	1894	CL	1911	Sold.
Daring [3]	21	1893	T	1912	Sold.
Dasher [1]	35m	1895	Y	1912	Sold.
Decoy [3]	21	1894	T	1904	Sunk, collision near Scilly Is.
Dragon	41m	1894	CL	1912	Sold.
Ferret [3]	41m	1893	CL	1910	Scrapped.
Fervent [1]	42	1895	HDW	1920	Sold.
Handy	24	1895	F	c.1918	Sold.
Hardy	35m	1895	Dx	1911	Sold.
Hart	24	1895	F	1913	Scrapped at Hong Kong.
Hasty [1]	35m	1894	Y	1912	Sold.
Haughty	35m	1895	Dx	1912	Sold.
Havock [1] [3]	31m	1893	Y	1912	Sold.
Hornet [3]	42	1893	Y	1909	Sold.
Hunter	24	1895	F	1912	Sold.
Janus	35m	1895	Pal.	1913	Scrapped at Hong Kong.
Lightning	35m	1895	Pal.	1915	Mined in North Sea.
Lynx [3]	41m	1894	CL	1912	Sold.
Opossum	31m	1895	HL	1920	Sold.
Porcupine	35m	1895	Pal.	1920	Sold.
Ranger	35m	1895	HL	1920	Sold.
Rocket	35m	1894	C	1912	Sold.
Salmon	42m	1895	E	1912	Sold.
Shark	35m	1894	C	1911	Sold.
Skate	35	1895	V	1907	Sold.
Snapper	42m	1895	E	1912	Sold.
Spitfire	35	1895	AW	1912	Sold.
Starfish	35m	1894	V	1912	Sold.
Sturgeon	31	1894	V.	1912	Sold.
Sunfish	31	1895	HL.	1920	Sold.



H.M.S. *Ranger* (' A ' Class). [*I.W.M.*



H.M.S. *Kangaroo* (' B ' Class).



H.M.S. *Lively*(' B ' Class). [*N.P.C*

A CLASS

Name	Funnel Code	Completed	Buider		
Surly	35m	1894	C.	1920	Sold.
Swordfish	35m	1895	AW.	1910	Sold.
Teazer	33	1895	W.	1912	Sold.
Wizard [2]	22	1895	W.	1920	Sold.
Zebra	33	1895	TIW.	1914	Sold.
Zephyr [1]	42	1895	HDW.	1920	Sold.

[1] These six ships originally had locomotive type boilers and two funnels close together (Code 20). [2] Wizard originally had three funnels (Code 33). [3] These six ships had bow torpedo tubes in addition to the two on deck, but the ships tended to over-run torpedoes fired ahead.

B CLASS
(30-knot "Turtle-Backs" with 4 Funnels)

Length: 210—218 ft. *Beam:* 20—22 ft. *Displacement:* 300—370 tons.
Triple expansion. 2 screws. 5,800—6,700 h.p. 30 knots.
Guns: 1—12 pdr., 5—6 pdr. *Torpedo tubes:* 2—18 in. *Complement:* 50—60.

Name	Funnel Code	Completed	Builder		
Earnest	41	1896	CL.	1920	Sold.
Griffon	41	1896	CL.	1920	Sold.
Kangaroo	42c	1901	Pal.	1920	Sold.
Lively	41	1901	CL.	1919	Sold.
Locust	41	1896	CL.	1919	Sold.
Myrmidon	42c	1901	Pal.	1917	Mined in the Channel.
Orwell	41	1901	CL.	1920	Sold.
Panther	41	1897	CL.	1920	Sold.
Peterel	42c	1899	Pal.	1919	Sold.
Quail	41	1895	CL.	1919	Sold.
Seal	41	1897	CL.	1921	Sold.
Sparrowhawk	41	1896	CL.	1904	Wrecked on China Station.
Spiteful	42c	1898	Pal.	1920	Sold.
Sprightly	41	1901	CL.	1921	Sold.
Success	42c	1901	Dx.	1914	Wrecked off Fifeness.
Syren	42c	1901	Pal.	1920	Sold.
Thrasher	41	1896	CL.	1921	Sold.
Virago	41	1896	CL.	1919	Sold.
Wolf	41	1897	CL.	1921	Sold.

The following larger ships differed as follows:—

Displacement: 440 tons. Turbines. 26.75 knots. *Guns:* 3—12 pdr.

Name	Funnel Code	Completed	Builder	
Albacore	42c	1908	Pal.	1919 Sold.
Bonetta	42c	1908	Pal.	1920 Sold.

Displacement: 470 tons. 6,000—9,000 h.p. 31—32 knots.

Name	Funnel Code	Completed	Builder	
Arab	42	1901	C.	1919 Sold.
Express	41	1896	CL.	1921 Sold.

Displacement: 400 tons. Turbines. c. 10,000 h.p. 34.9 knots.

Name	Funnel Code	Completed	Builder	
Cobra	44	1900	AW.	1901 Foundered in North Sea.

C CLASS
(30-knot "Turtle-Backs" with 3 Funnels)

As B class but displacement 283—330 tons (*Albatross* 360 tons 31.75 knots).

Name	Funnel Code	Completed	Builder	
Albatross	31	1898	T.	1920 Sold.
Avon	35	1896	V.	1920 Sold.
Bat	35	1896	Pal.	1919 Sold.
Bittern	35	1897	V.	1918 Sunk, collision off Portland Bill.
Brazen	35m	1896	C.	1919 Sold.
Bullfinch	35	1901	E.	1919 Sold.
Chamois	35	1896	Pal.	1905 Sank in Gulf of Patras.*
Cheerful	35	1897	HL.	1917 Mined off Shetland Is.
Crane	35	1896	Pal.	1919 Sold.
Dove	35	1898	E.	1920 Sold.
Electra	35m	1901	C.	1920 Sold.
Fairy	31	1897	F.	1918 Rammed UC75 and sank.
Falcon	31	1901	F.	1918 Sunk, collision in North Sea.
Fawn	35	1897	Pal.	1919 Sold.
Flirt	35	1897	Pal.	1916 Torpedoed in Straits of Dover.
Flying Fish	35	1897	Pal.	1919 Sold.
Gipsy	31	1897	F.	1921 Sold.

*Broken propeller blade pierced hull.

C CLASS

Name	Funnel Code	Completed	Builder		
Greyhound	35	1900	HL.	1919	Sold.
Kestrel	35m	1898	C.	1921	Sold.
Lee	35	1899	Dx.	1909	Wrecked in Blacksod Bay.
Leopard	35	1897	V.	1919	Sold.
Leven	31	1901	F.	1920	Sold.
Mermaid	35	1898	HL.	1919	Sold.
Osprey	31	1897	F.	1919	Sold.
Ostrich	31	1901	F.	1920	Sold.
Otter	35	1896	V.	1917	Scrapped in Far East.
Racehorse	35	1900	HL.	1920	Sold.
Recruit	35m	1901	C.	1915	Torpedoed, U66 in Thames Estuary.
Roebuck	35	1901	HL.	1919	Scrapped.
Star	35	1896	Pal.	1919	Sold.
Sylvia	35	1897	Dx.	1919	Sold.
Thorn	35	1901	Y.	1919	Scrapped.
Tiger	35	1901	C.	1908	Sunk, collision off Isle of Wight.
Vigilant	35	1901	C.	1920	Sold.
Violet	31	1897	Dx.	1920	Sold.
Vixen	35	1901	V.	1921	Sold.
Vulture	35m	1898	C.	1919	Sold.
Whiting	35	1896	Pal.	1919	Sold.

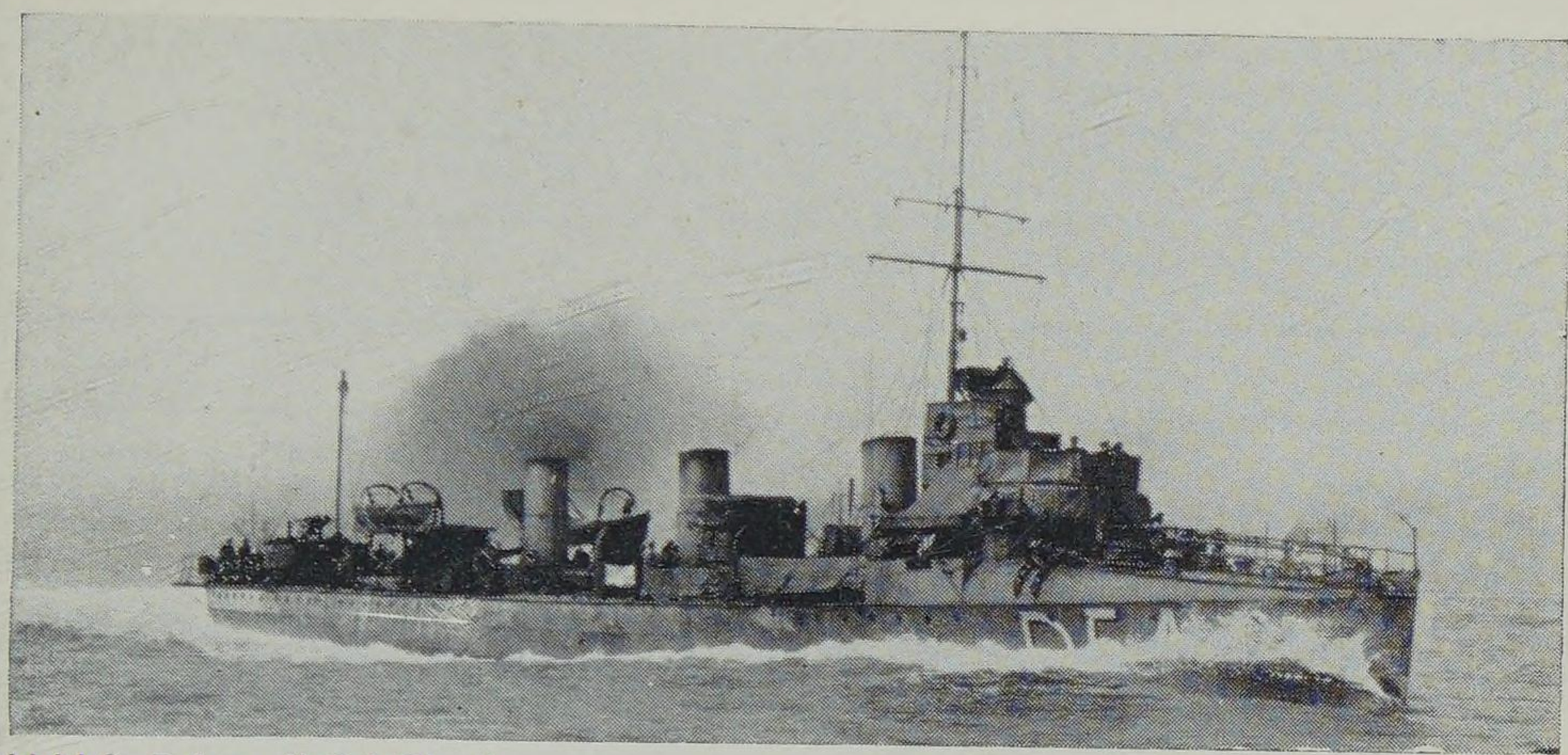
Two larger ships were turbine-driven with 8 screws on 4 shafts. *Viper* (370 tons) reached 35.5 knots with 12,000 h.p., but *Velox* (440 tons) was later quoted as 8,000 h.p. with a speed of only 27 knots.

Name	Funnel Code	Completed	Builder		
Velox	35	1902	HL.	1915	Mined near Nab Lightship.
Viper	39	1899	HL.	1901	Wrecked on Alderney.

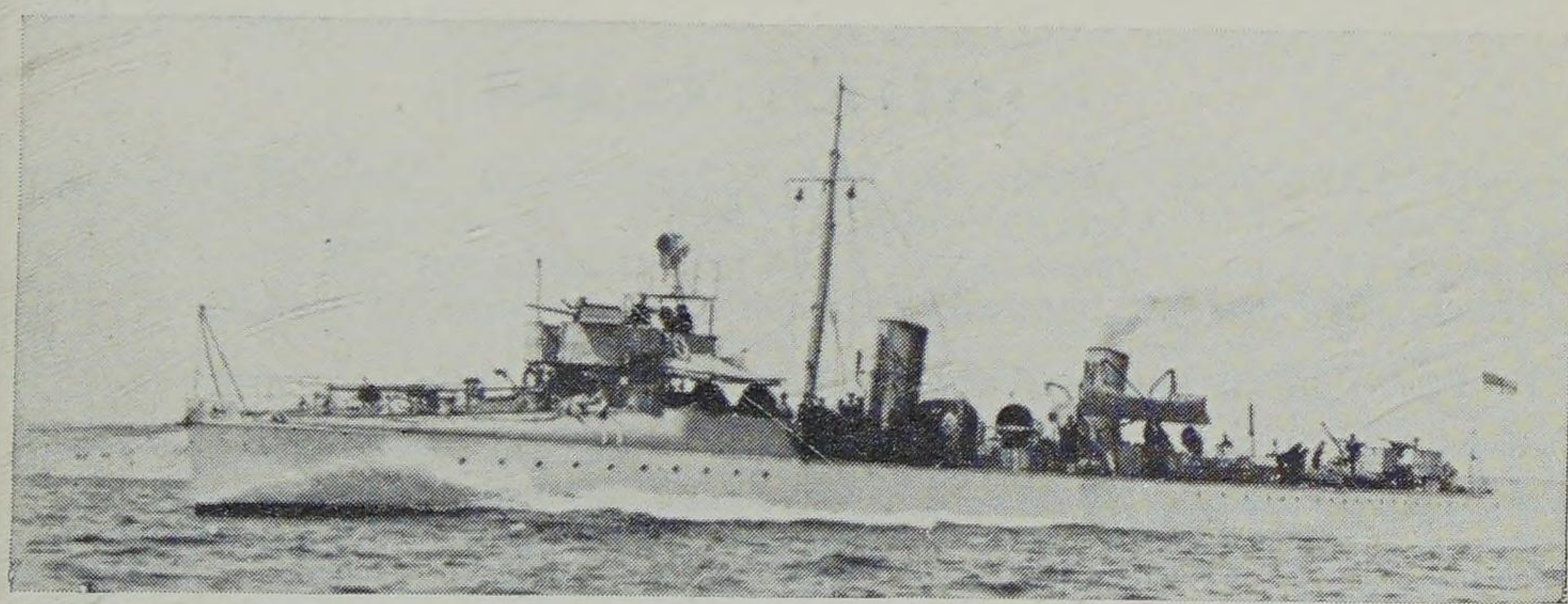
D CLASS
(30-knot "Turtle-Backs" with 2 Funnels)

As B class but 275—285 tons, 5,500—5,800 h.p.

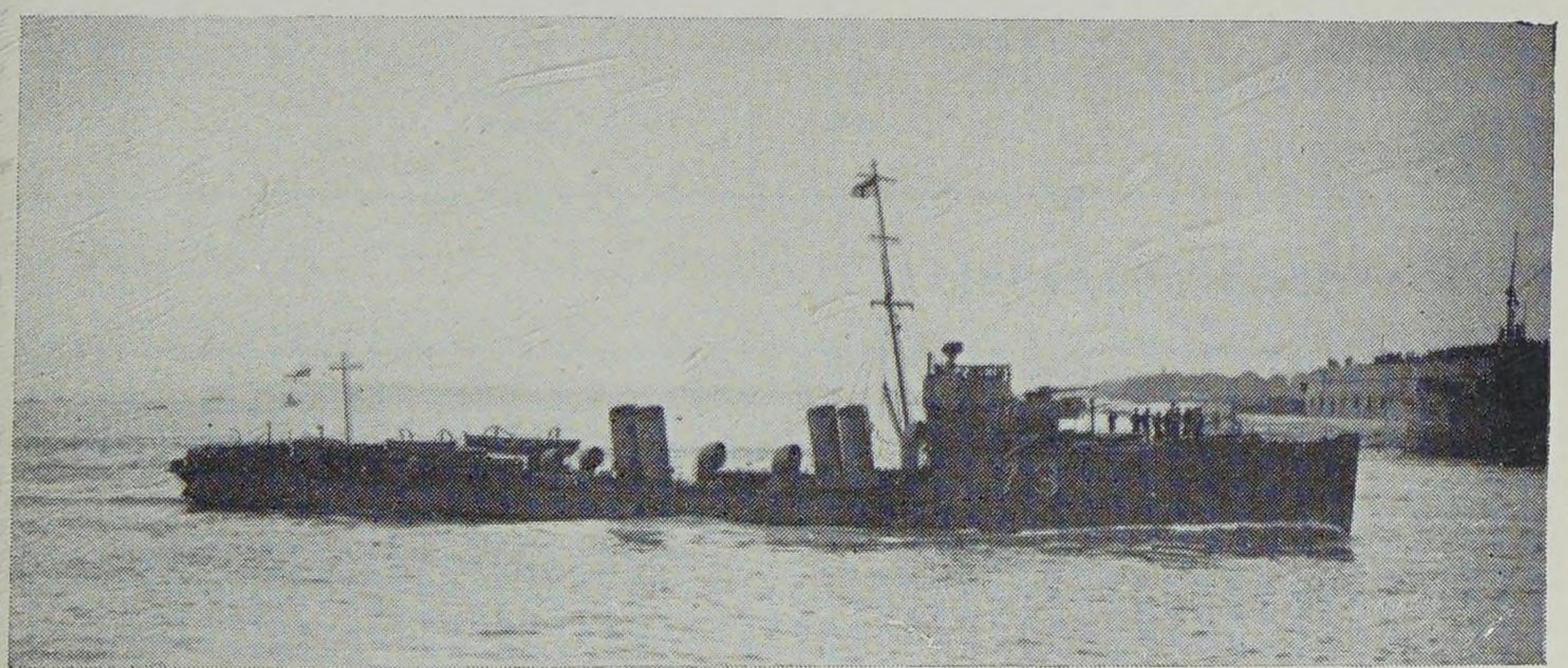
Name	Funnel Code	Completed	Builder		
Angler	21	1896	T.	1920	Sold.
Ariel	21	1897	T.	1907	Wrecked off Malta.
Coquette	21	1898	T.	1916	Mined in North Sea.
Cygnet	21	1898	T.	1920	Scrapped.
Cynthia	21	1898	T.	1920	Sold.
Desperate	21	1895	T.	1920	Sold.
Fame	21	1896	T.	1921	Sold at Hong Kong.
Foam	21	1896	T.	1914	Sold.
Mallard	21	1896	T.	1920	Sold.
Stag	21	1899	T.	1921	Sold.



H.M.S. *Falcon* (' C ' Class). [*I.W.M.*



H.M.S. *Stag* (' D ' Class). In white livery for tropical service.



H.M.S. *Rother* (' E ' Class). [*I.W.M.*

There was also H.M.S. *Taku* captured from China in the Boxer Rising of 1900 Built by Schichau (Elbing), her dimensions were:—
Length: 193⅔ ft. *Beam:* 20 ft. *Displacement:* 305 tons.
Triple expansion (3-cyl.). 2 screws. 6,500 h.p. 32 knots.
Guns: 6—3 pdr. *Torpedo tubes:* 3—18 in.* *Complement:* 62.
*Accounts vary as to torpedo armament.

Name	Funnel Code	Completed	Builder	
Taku	21	1898	S.	1916 Sold in Far East.

The lists above cover the 116 destroyers with turtle-back forecastles, some of which had of course gone before the letter classification was adopted. Later classes had high forecastles, introduced on German destroyers in 1899.

E (RIVER) CLASS

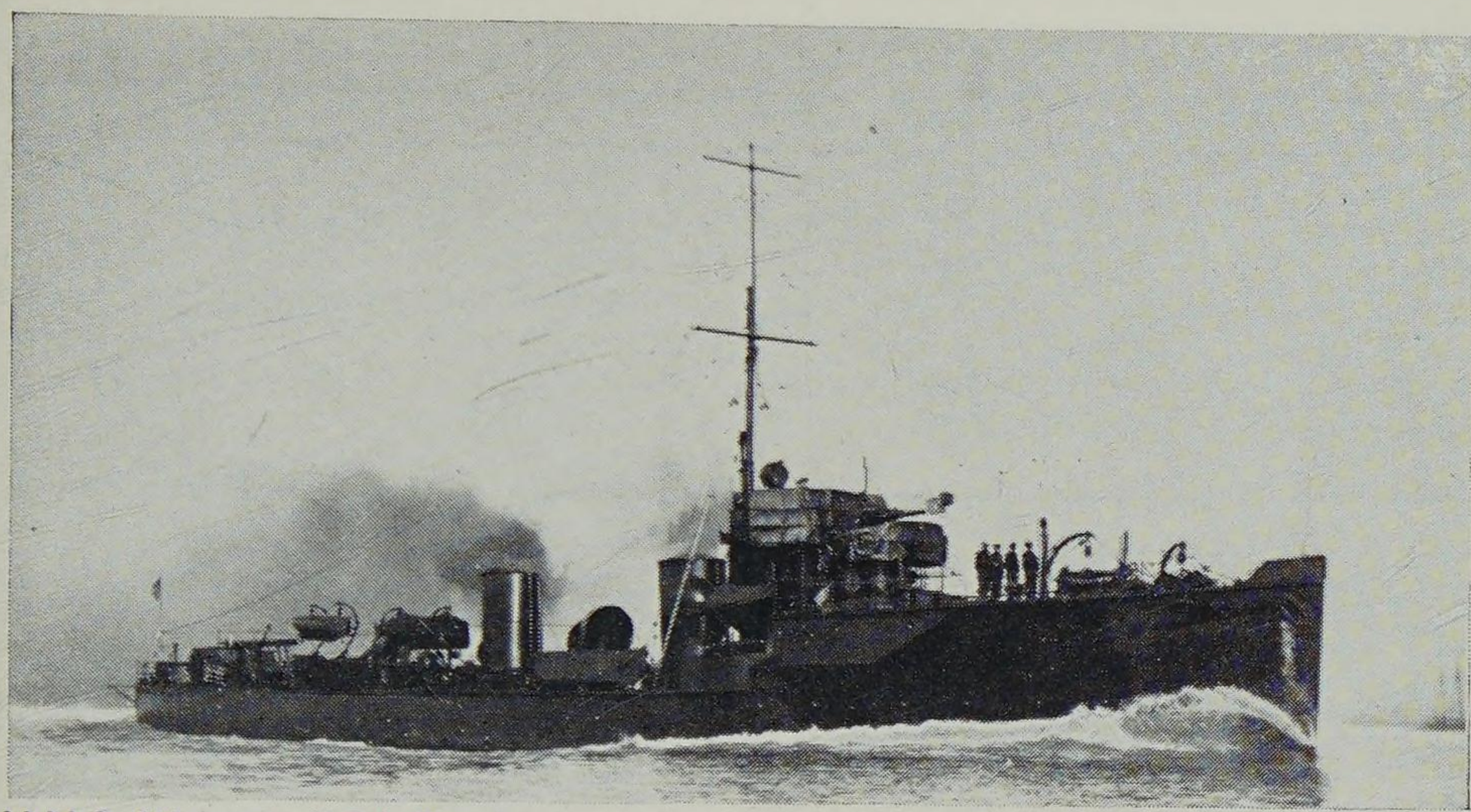
Length: 220—225 ft. *Beam:* 23—24 ft. *Displacement:* 527—566 tons.
Triple expansion*. 2 screws. 7,000—7,500 h.p. 25—26 knots.
Guns: 4—12 pdr. *Torpedo tubes:* 2—18 in. *Complement:* 70.
* *Eden*, *Stour* and *Test* had turbines, *Eden's* with 6 screws on 2 shafts.

(1) Four Funnels in Close Pairs (Code 43c).

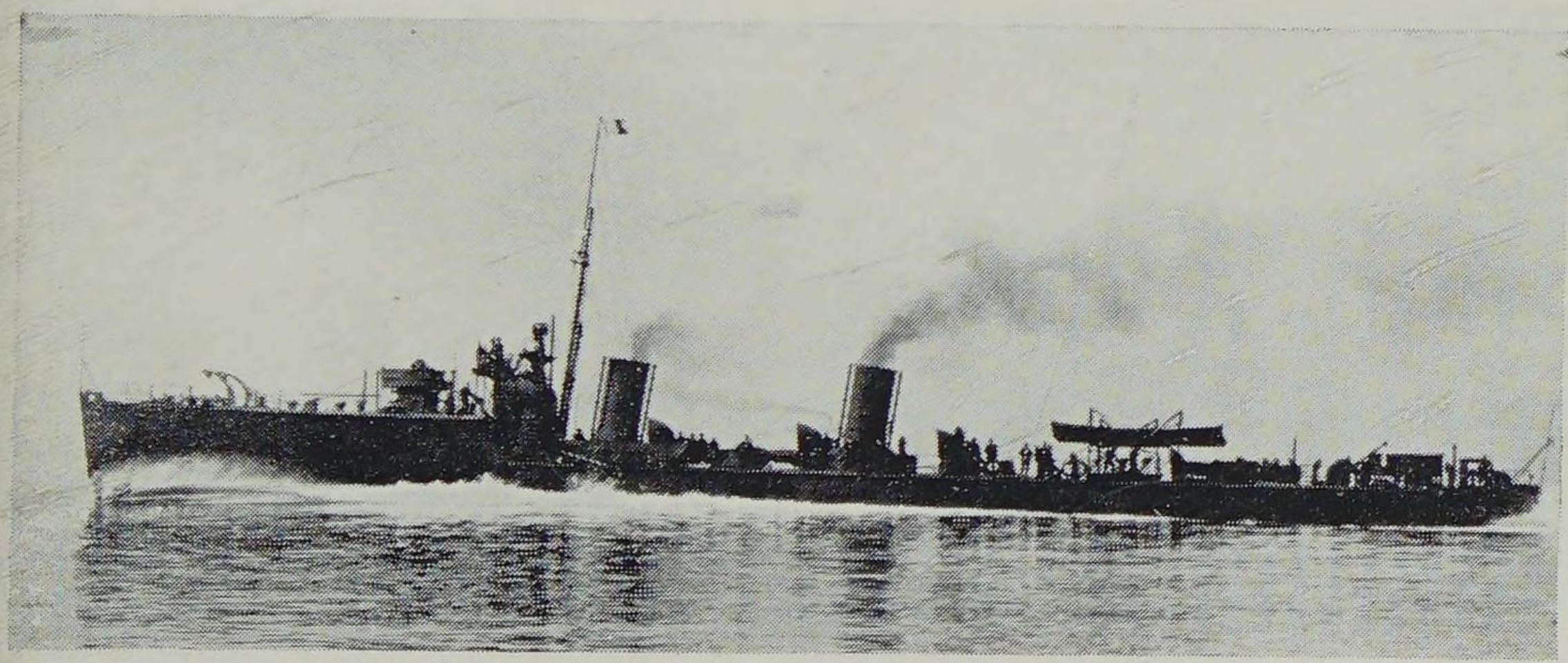
Name	Completed	Builder	
Cherwell	1903	Pal.	1919 Sold.
Dee	1903	Pal.	1919 Sold.
Erne	1903	Pal.	1915 Wrecked off Rattray Head.
Ettrick	1903	Pal.	1919 Sold.
Exe	1903	Pal.	1920 Sold.
Rother	1904	Pal.	1919 Sold.
Swale	1905	Pal.	1919 Sold.
Ure	1904	Pal.	1919 Sold.
Wear	1905	Pal.	1919 Sold.

(2) Four Funnels in Open Pairs (Code 43).

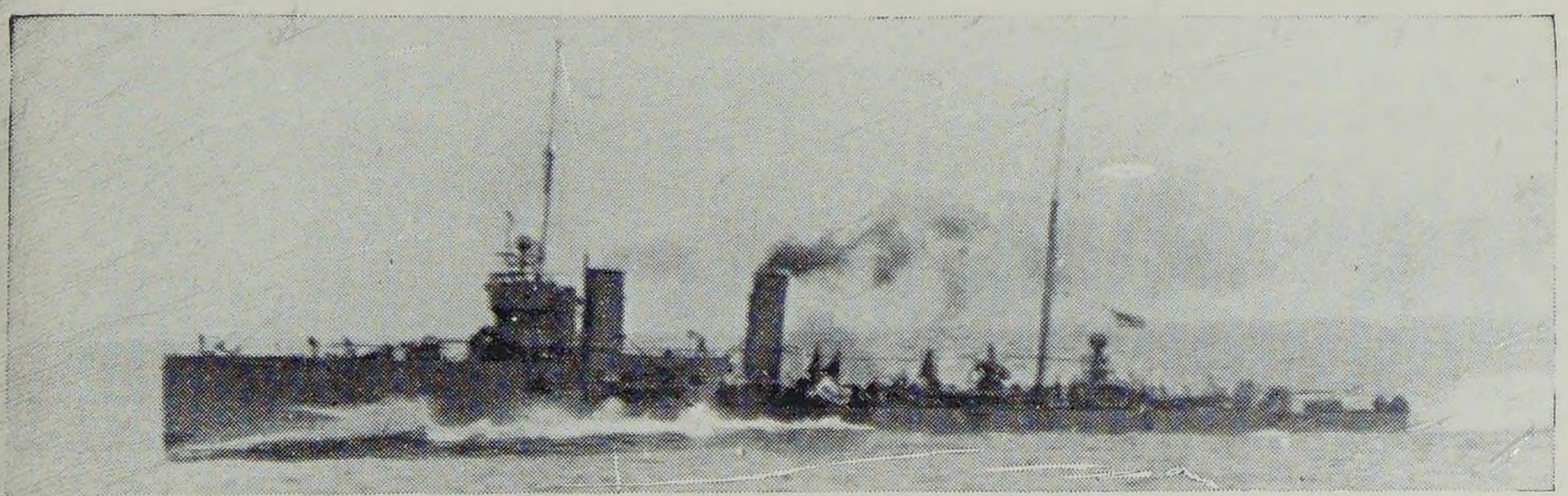
Name	Completed	Builder	
Gala	1905	Y.	1908 Sunk, collision off Harwich.
Garry	1905	Y.	1919 Sold.
Ribble	1904	Y.	1920 Sold.
Teviot	1903	Y.	1919 Sold.
Usk	1903	Y.	1919 Sold.
Welland	1904	Y	1920 Sold.



H.M.S. *Waveney* (' E ' Class).



H.M.S. *Moy* (' E ' Class).



H.M.S. *Arno* in 1917. [*I.W.M.*

(3) Two Short Funnels (Code 24).

Name	Completed	Builder		
Boyne	1904	HL.	1919	Sold.
Derwent	1904	HL.	1917	Mined off Havre.
Doon	1904	HL.	1919	Sold.
Eden	1903	HL.	1916	Sunk, collision in the Channel.
Kale	1904	HL.	1918	Mined in the North Sea.
Waveney	1903	HL.	1920	Sold.

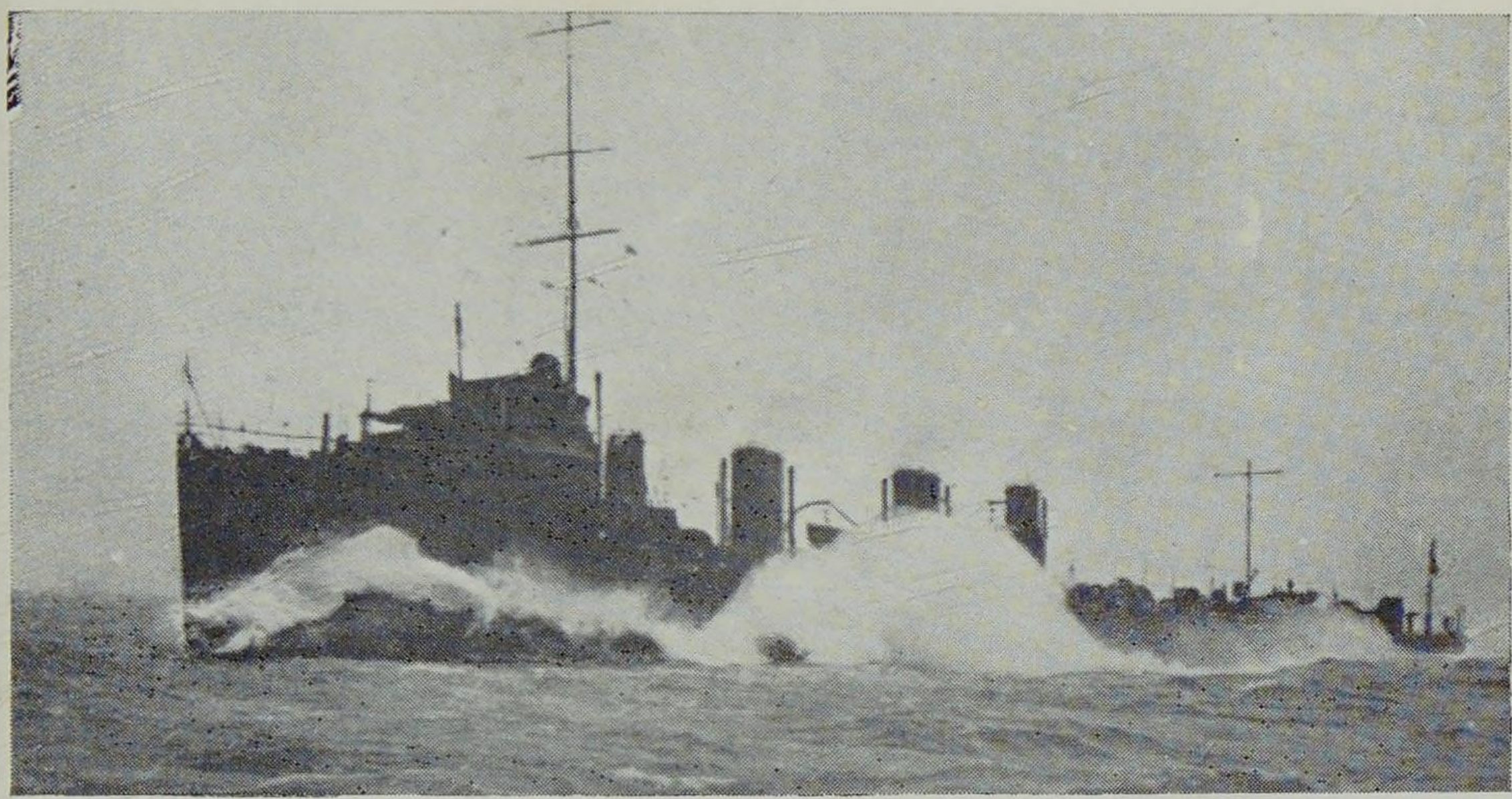
(4) Two Tall or Medium Funnels (Code 21).

Name	Completed	Builder		
Arun	1903	CL.	1920	Sold.
Blackwater	1903	CL.	1909	Sunk,collision off Dungeness.
Chelmer	1904	T.	1920	Sold.
Colne	1905	T.	1919	Sold.
Foyle	1903	CL.	1917	Mined in the Straits of Dover
Itchen	1903	CL.	1917	Torpedoed by U-boat in N. Sea.
Jed	1904	T.	1920	Sold.
Kennet	1903	T.	1919	Sold.
Liffey	1904	CL.	1919	Sold.
Moy	1904	CL.	1919	Sold.
Ness	1905	W	1919	Sold.
Nith	1905	W.	1919	Sold.
Ouse	1905	CL.	1919	Sold.
Stour	1909	CL.	1919	Sold.
Test	1909	CL.	1919	Sold.

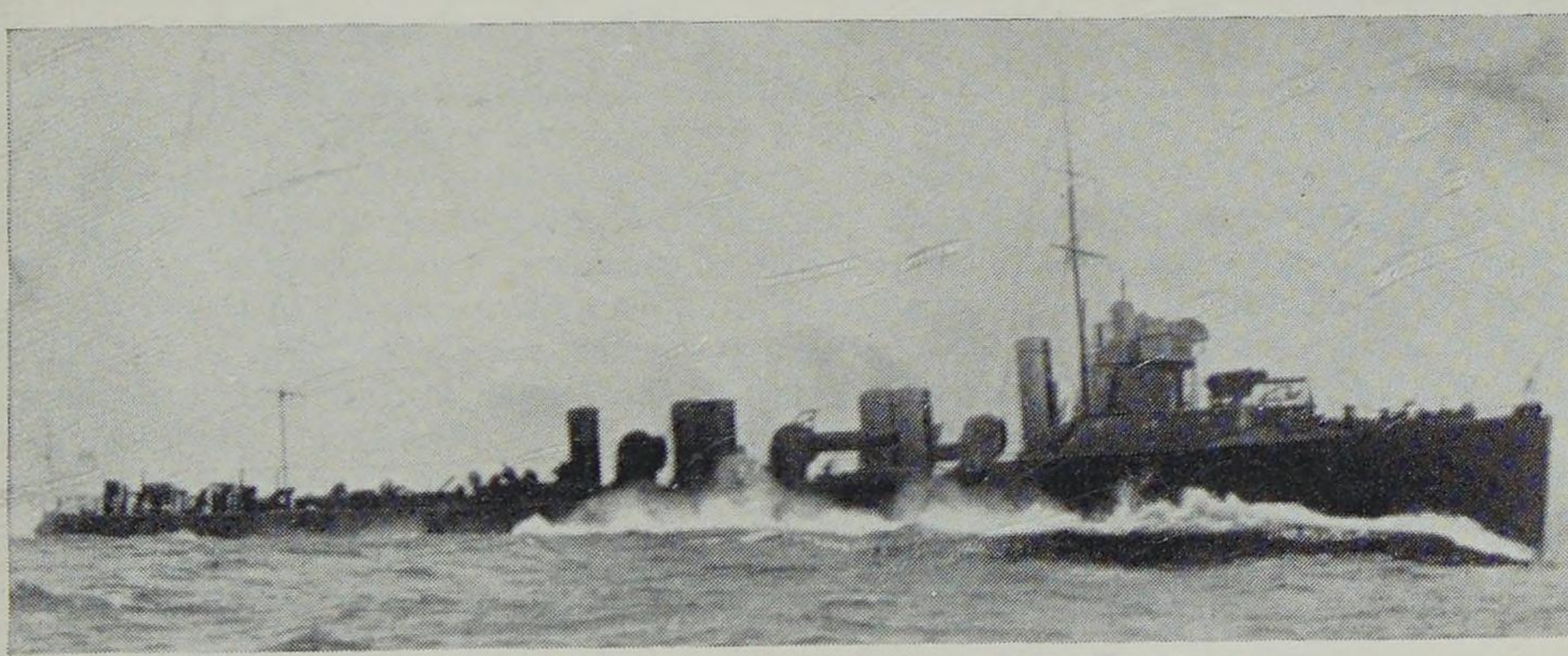
The last two ships were replacements.

A similar ship, building at Genoa as the Portuguese *Liz*, was taken over in 1914 as H.M.S. *Arno*. She differed principally in having 3—18 in. Torpedo tubes and a mainmast.

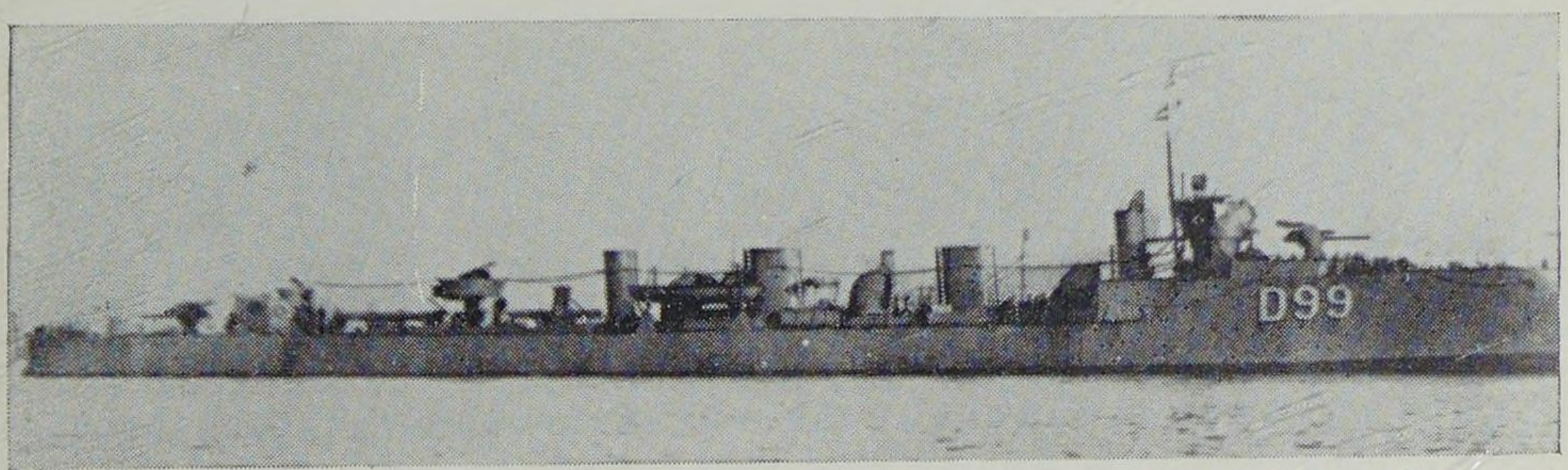
Name	Completed	Builder		
Arno	1915	Ansaldo	1918	Sunk, collision in the Dardanelles.



H.M.S. *Crusader* (' F ' Class). [*Cozens*



H.M.S. *Viking* (' F ' Class). The only British ship with six funnels. [*N.P.C.*



H.M.S. *Zubian*. Constructed from the undamaged parts of H.M. Ships *Zulu* and *Nubian* (' F ' Class). [*I.W.M*

F (TRIBAL) CLASS

1907 ships.
Length: 250—270 ft. *Beam:* 25—26 ft. *Displacement:* 865—890 tons.
Turbines. 3 screws. 14,500 h.p. 33—36 knots.
Guns: 5—12 pdr. *Torpedo tubes:* 2—18 in. *Complement:* 60.
1908-9 ships differed:—
Length: 280 ft. *Beam:* 26—27 ft. *Displacement:* 970—1,090 tons.
15,500 h.p. *Guns:* 2—4 in. *Complement:* 67—72.

Name		*Completed*	*Builder*		
Afridi	37	1907	AW.	1919	Sold.
Amazon	41h	1908	T.	1919	Sold.
Cossack	39	1907	CL.	1919	Sold.
Crusader	45h	1909	W.	1920	Sold.
Ghurka	37	1907	HL.	1917	Mined off Dungeness.
Maori	45h	1909	Dny.	1915	Mined off Zeebrugge.
Mohawk	45h	1907	W.	1919	Sold.
Nubian [1]	41h	1909	T.	1916	Torpedoed off Folkestone.
Saracen	45h	1908	W.	1919	Sold.
Tartar	46h	1907	T.	1921	Sold.
Viking	65ch	1909	Pal.	1919	Sold.
Zulu [1]	45h	1909	HL.	1916	Mined near Dover.

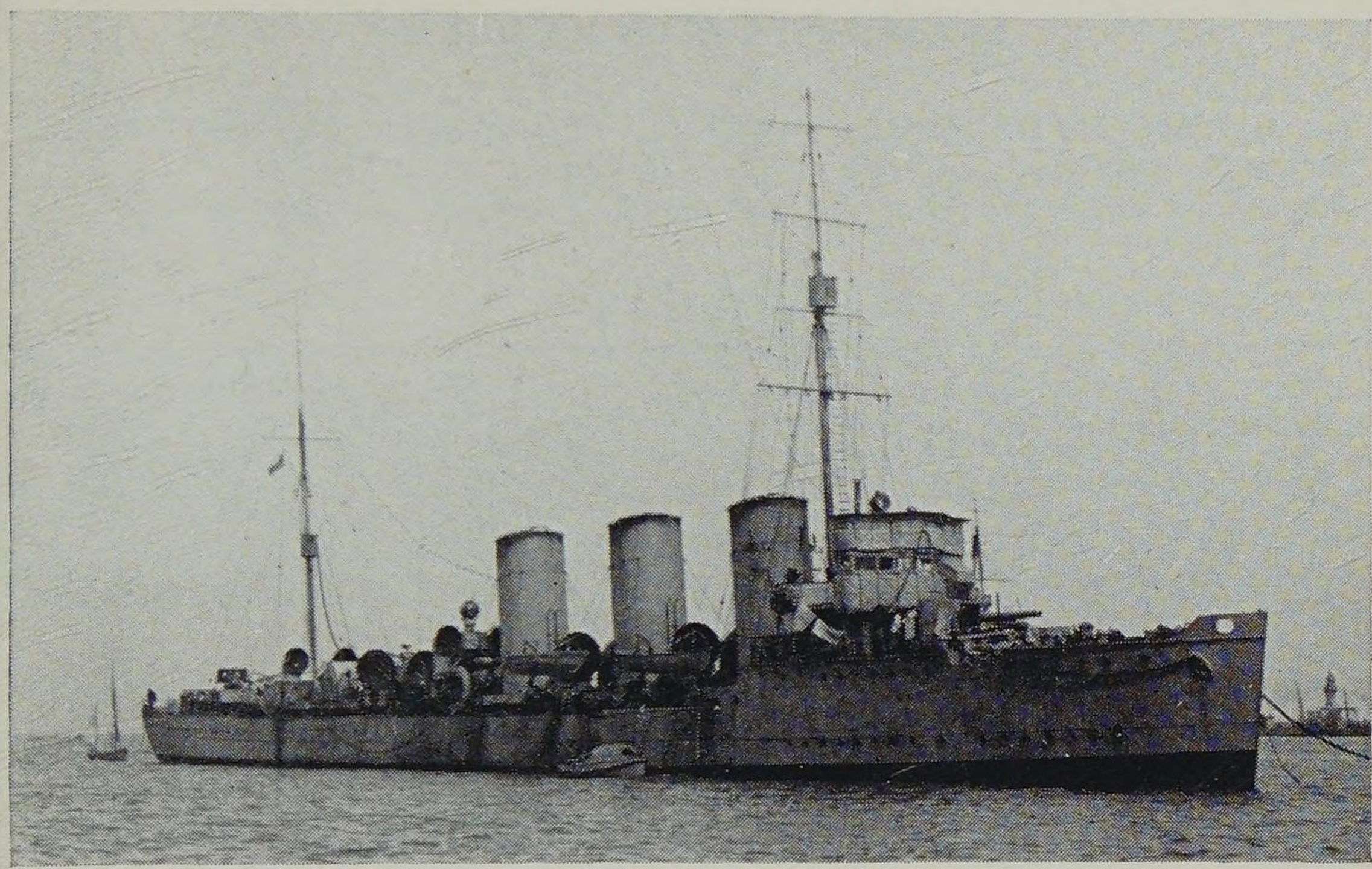
[1] On the 27th Oct., 1916, the after part of the Zulu was destroyed by a mine and the fore part of the Nubian wrecked by a torpedo from a German destroyer. The fore part of the Zulu and after part of the Nubian were towed in and later joined up to form the ship *Zubian*—a loss of only one ship instead of two. As such H.M.S. *Zubian* acquired three battle honours before being sold in 1919. H.M.S. *Tartar* made 37.4 knots on trial making her the fastest ship of her day. She and *Viking* (the only six-funnelled ship in the Navy), at first had semi-turtle back forecastles which were altered to standard during the war. *Mohawk* also had a rounded forecastle which was altered later. The fore funnels of the four-funnelled ships were heightened in 1911-12.

H.M.S. SWIFT (Special Flotilla Leader)

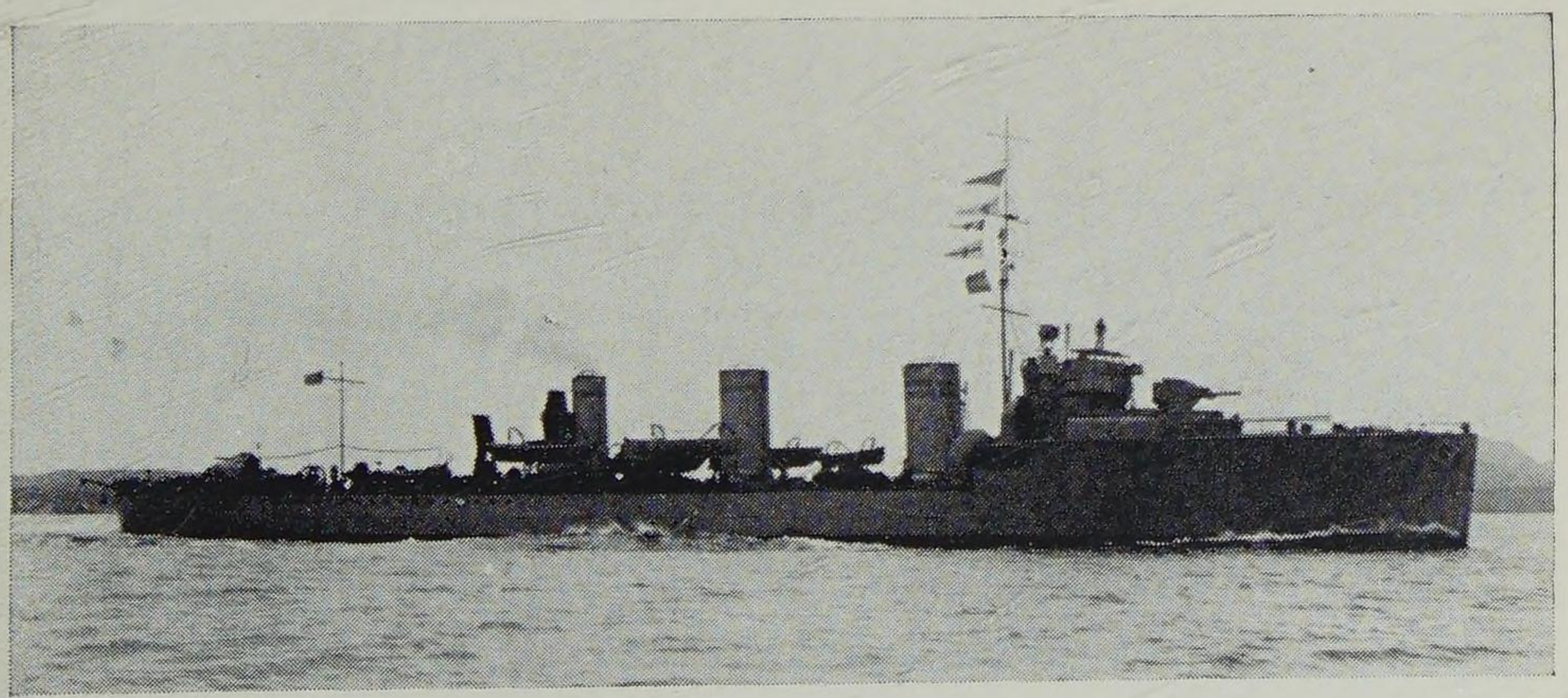
Length: 353 ft. *Beam:* 34¼ ft. *Displacement:* 1,825—2,207 tons.
Turbines. 4 screws. 30,000—50,000 h.p. 36—39 knots.
Guns: 4—4 in.*, 1—2 pdr. *Torpedo tubes:* 2—18 in. *Complement:* 138.

Name		*Completed*	*Builder*		
Swift	39	1907	CL.	1921	Sold.

* When altered in 1916-17 the two forecastle 4 in. guns were replaced by one 6 in., the heaviest gun mounted on a British destroyer. Built as a Leader for much larger and faster vessels, her size was not approached in the Navy until 1937. H.M.S. *Swift* was painted grey before 1914, at which period she was reputed to be the fastest ship in the Fleet and to have exceeded 40 knots on occasion.



H.M.S. *Swift* with 6 in. gun on forecastle. [*I.W.M.*



H.M.S. *Scourge* (' G ' Class). [*I.W.M.*

G (BASILISK) CLASS

Length: 266—275 ft. *Beam:* 26¾—28 ft. *Displacement:* 885—964 tons.
Turbines. 3 screws. 12,500 h.p. 27—28 knots.
Guns: 1—4 in., 3—12 pdr. *Torpedo tubes:* 2—18 in. *Complement:* 96.

(1) Three Funnels, the third small (Code 37).

Name	Completed	Builder		
Basilisk	1910	W.	1921	Sold.
Beagle	1909	C.	1922	Sold.
Bulldog	1909	C.	1920	Sold.
Foxhound	1909	C.	1920	Sold.
Grampus*	1910	TIW.	1920	Sold.
Harpy	1909	W.	1921	Sold.
Rattlesnake	1910	L. & G.	1921	Sold.
Scourge	1910	HL.	1921	Sold.

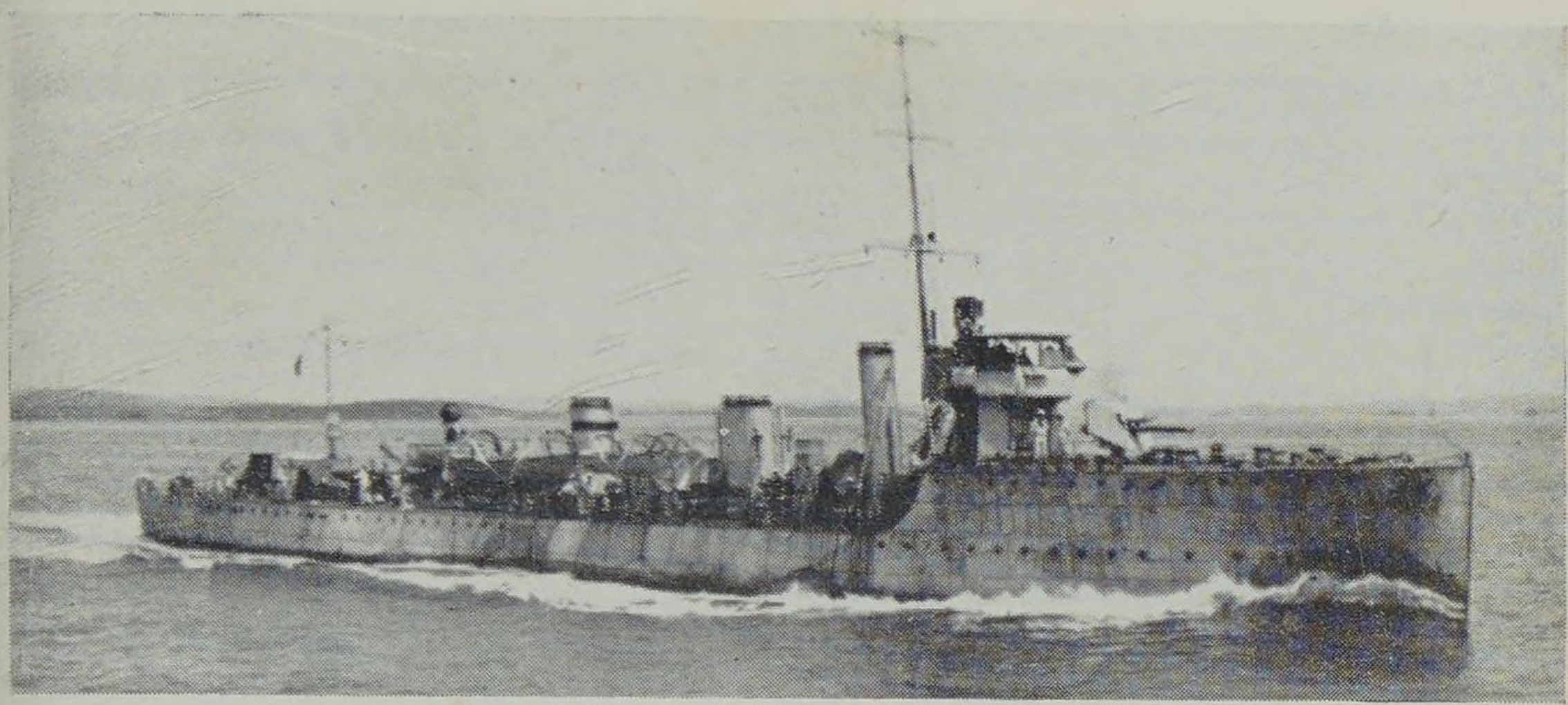
* Formerly *Nautilus* renamed 1913.

(2) Three Equal Funnels (Code 31).

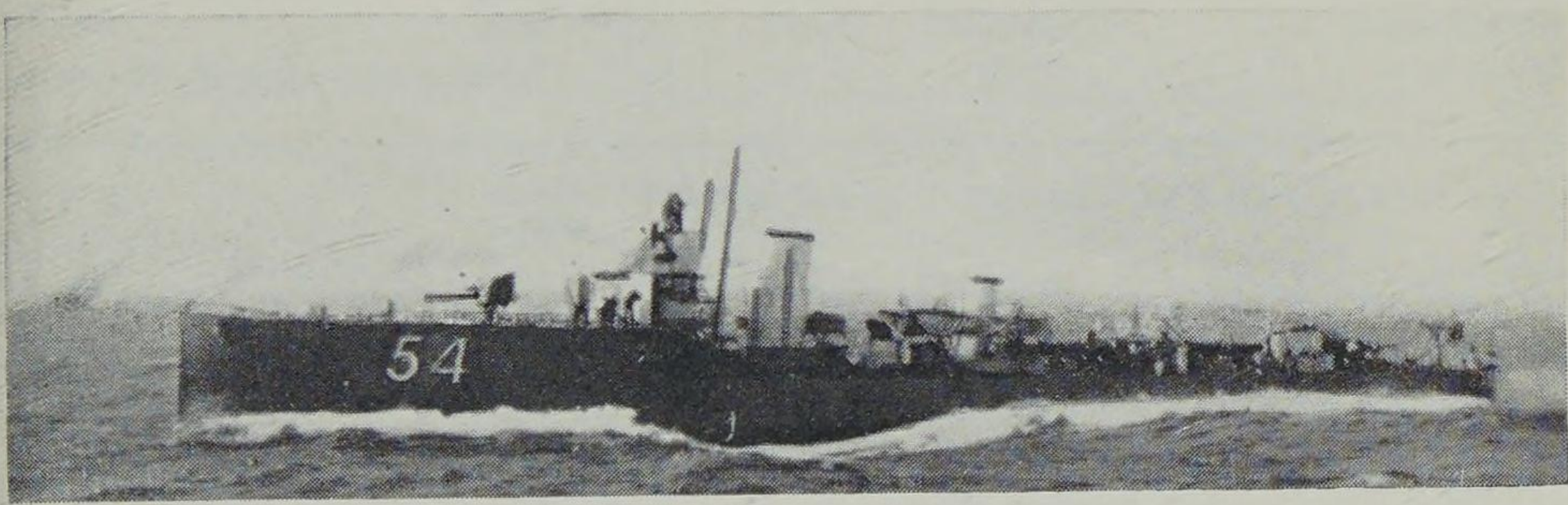
Name	Completed	Builder		
Grasshopper	1909	F.	1921	Sold.
Mosquito	1910	F.	1920	Sold.
Pincher	1910	Dny.	1918	Wrecked off Scilly Is.
Racoon	1910	CL.	1918	Wrecked, N. Coast of Ireland.
Renard	1909	CL.	1921	Sold.
Savage	1910	T.	1921	Sold.
Scorpion	1910	F.	1921	Sold.
Wolverine	1910	CL.	1917	Sunk, collision off N.W. Ireland.

H (ACORN) CLASS

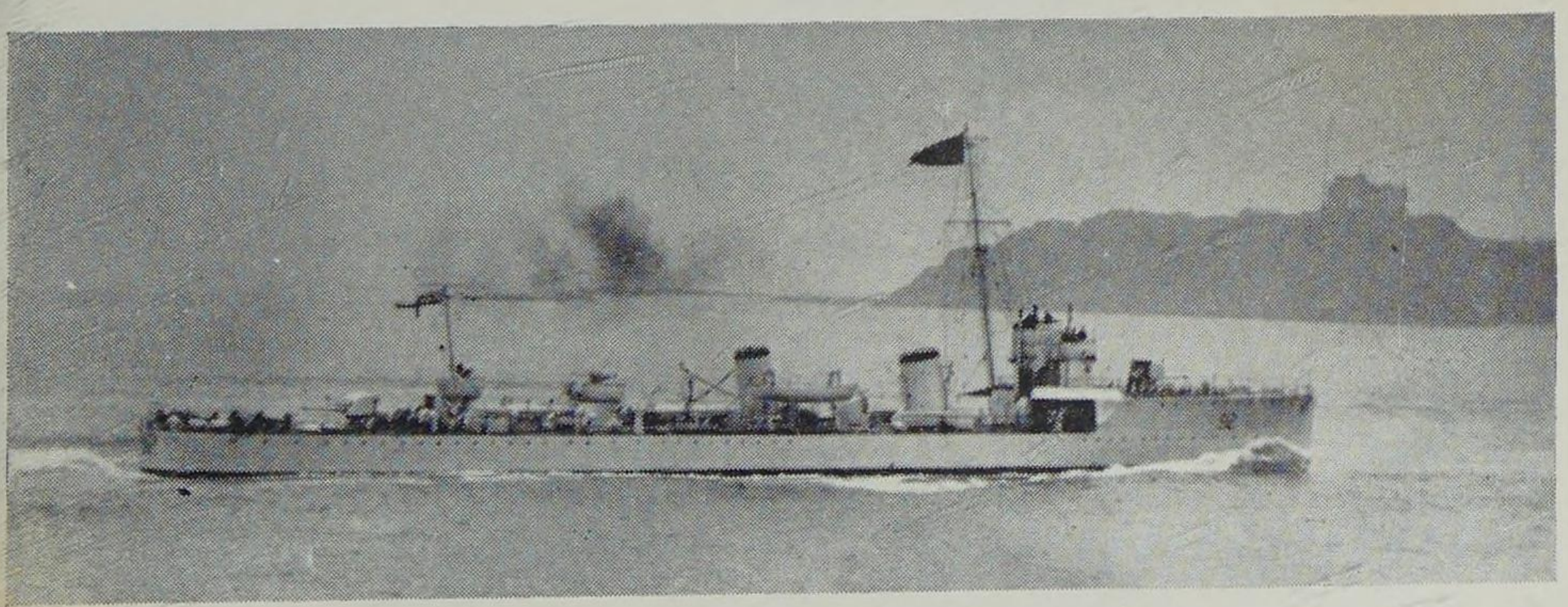
Length: 240 ft. *Beam:* 25½ ft. *Displacement:* 780 tons.
Turbines. 3 screws. 13,500 h.p. 27—30 knots.
Guns: 2—4 in. *Torpedo tubes:* 2—21 in. *Complement:* 72.
All had three unequal funnels, the first heightened (Code 35h).



H.M.S. *Redpole* (' H ' Class). [*I.W.M.*



H.M.S. *Defender* (' I ' Class). [*N.P.C.*



H.M.S. *Oak* (Special ' I ' Class), attached to the Fleet Flagship. Here seen flying the Royal Standard with H.M. King George V on board. [*H.S. & R.*

H CLASS

Name	Completed	Builder	
Acorn	1910	C.	1921 Sold.
Alarm	1910	C.	1921 Sold.
Brisk	1910	C.	1921 Sold.
Cameleon	1910	F.	1921 Sold.
Comet	1910	F.	1918 Torpedoed, U-boat in Med.
Fury	1911	Ing.	1921 Sold.
Goldfinch	1910	F.	1915 Wrecked in fog, Orkneys.
Hope	1910	SH.	1920 Sold.
Larne	1910	T.	1921 Sold.
Lyra	1910	T.	1921 Sold.
Martin	1910	T.	1920 Sold.
Minstrel	1911	T.	1917-19 To Japan*. 1921 Sold.
Nemesis	1910	HL.	1917-19 To Japan*. 1921 Sold.
Nereide	1910	HL.	1921 Sold.
Nymphe	1911	HL.	1921 Sold.
Redpole	1910	W.	1921 Sold.
Rifleman	1910	W.	1921 Sold.
Ruby	1910	W.	1921 Sold.
Sheldrake	1911	Dny.	1921 Sold.
Staunch	1910	Dny.	1917 Torpedoed, U-boat off Gaza.

* On loan to Japan as " Sendan " and " Kanran ".

I (ACHERON) CLASS

Length: 240 ft. *Beam:* 25¾ ft. *Displacement:* 750—780 tons.
Turbines. 3 screws. 13,500 h.p. 27—30 knots.
Guns: 2—4 in., 2—12 pdr. *Torpedo tubes:* 2—21 in. *Complement:* 72.
(1) Two funnels (Code 22), fore later heightened (Code 22h).

Name	Completed	Builder	
Defender	1911	Dny.	1921 Sold.
Druid	1911	Dny.	1921 Sold.
Ferret	1911	W.	1921 Sold.
Forester	1911	W.	1921 Sold.
Goshawk	1911	WB.	1921 Sold.
Hind	1911	C.	1921 Sold.
Hornet	1911	C.	1921 Sold.
Hydra	1912	C.	1921 Sold.
Jackal	1911	HL.	1920 Sold.
Lapwing	1911	CL.	1921 Sold.
Lizard	1911	CL.	1921 Sold.
Phoenix	1911	V.	1918 Torpedoed, U-boat in the Adriatic.
Sandfly	1911	SH.	1921 Sold.
Tigress	1911	HL.	1921 Sold.

(2) As above but 2 screws, 15,000—16,500 h.p. 29—31 knots.

Archer and *Attack* were superheated, *Badger* and *Beaver* had geared turbines. Greater space between bridge and fore funnel which was not heightened later.

Name	Completed	Builder		
Acheron	1911	T.	1921	Sold.
Archer	1911	Y.	1921	Sold.
Ariel (ML)	1911	T.	1918	Mined in North Sea.
Attack	1911	Y.	1917	Mined off Alexandria.
Badger	1911	HL.	1921	Sold.
Beaver	1911	HL.	1921	Sold.

(3) As *Acheron* but
Length: 255 ft. *Displacement:* 790 tons. 20,000 h.p. 32—35 knots

Name	Completed	Builder		
Firedrake	1912	Y.	1922	Sold.
Lurcher	1912	Y.	1922	Sold.
Oak	1912	Y.	1921	Sold.

(4) Australian ships. Two funnels (Code 21).
Length: 245—251 ft. *Beam:* 24½ ft. *Displacement:* 700 tons.
Turbines. 3 screws. 9,500—11,300 h.p. 26—28 knots.
Guns: 1—4 in., 3—12 pdr. *Torpedo tubes:* 3—18 in. *Complement:* 66.

Name	Completed	Builder		
Huon	1914	Co.	1930	Discarded.
Parramatta	1910	F.	1930	Discarded.
Swan	1915	Co.	1929	Scrapped.
Torrens	1915	Co.	1929	Scrapped.
Warrego*	1911	F.	1929	Scrapped.
Yarra	1910	Dny.	1929	Scrapped.

* Erected in Australia.

(NOTE: There was no 'J' class.)

K (ACASTA) CLASS

Length: 257—266 ft. *Beam:* 26½—28 ft. *Displacement:* 935—1,000 tons.
Turbines. 3 screws. 22,500—25,000 h.p. 30—32 knots.
Guns: 3—4 in. *Torpedo tubes:* 2—21 in. *Complement:* 75—77.
Funnels as H class (Code 35h), but the 'K's' differed in having the forward torpedo tube between the second and third funnels, instead of abaft.

K CLASS

(1)

Name	Completed	Builder		
Acasta	1912	C.	1921	Sold.
Achates	1912	C.	1921	Sold.
Ambuscade	1913	C.	1921	Sold.
Christopher	1912	HL.	1921	Sold.
Cockatrice	1912	HL.	1921	Sold.
Contest	1913	HL.	1917	Torpedoed, U-boat in the Channel.
Lynx	1913	L. & G.	1915	Mined off Moray Firth.
Midge	1913	L. & G.	1921	Sold.
Owl	1913	L. & G.	1921	Sold.
Shark	1912	SH.	1916	Sunk at Jutland.
Sparrowhawk	1912	SH.	1916	Sunk at Jutland.
Spitfire	1913	SH.	1921	Sold.

(2) As above but 2 screws and different disposition of armament.

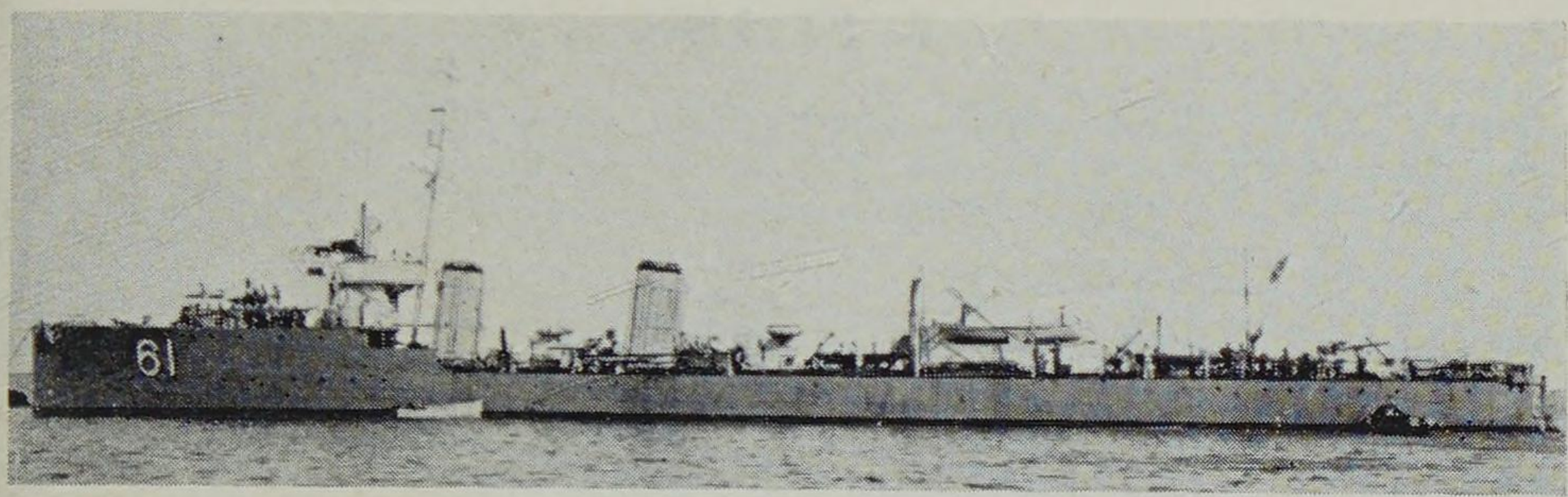
Name	Completed	Builder		
Garland	1913	CL.	1921	Sold.
Hardy	1912	T.	1921	Sold.
Paragon	1913	T.	1917	Torpedoed, destroyer in Straits of Dover.
Porpoise	1913	T.	1920	Became Brazilian *Maranhao.*
Unity	1913	T.	1922	Sold.
Victor	1913	T.	1923	Sold.

(3) The prototype for the three-funnelled 'L' class next described, but had cut-away bows instead of raked.

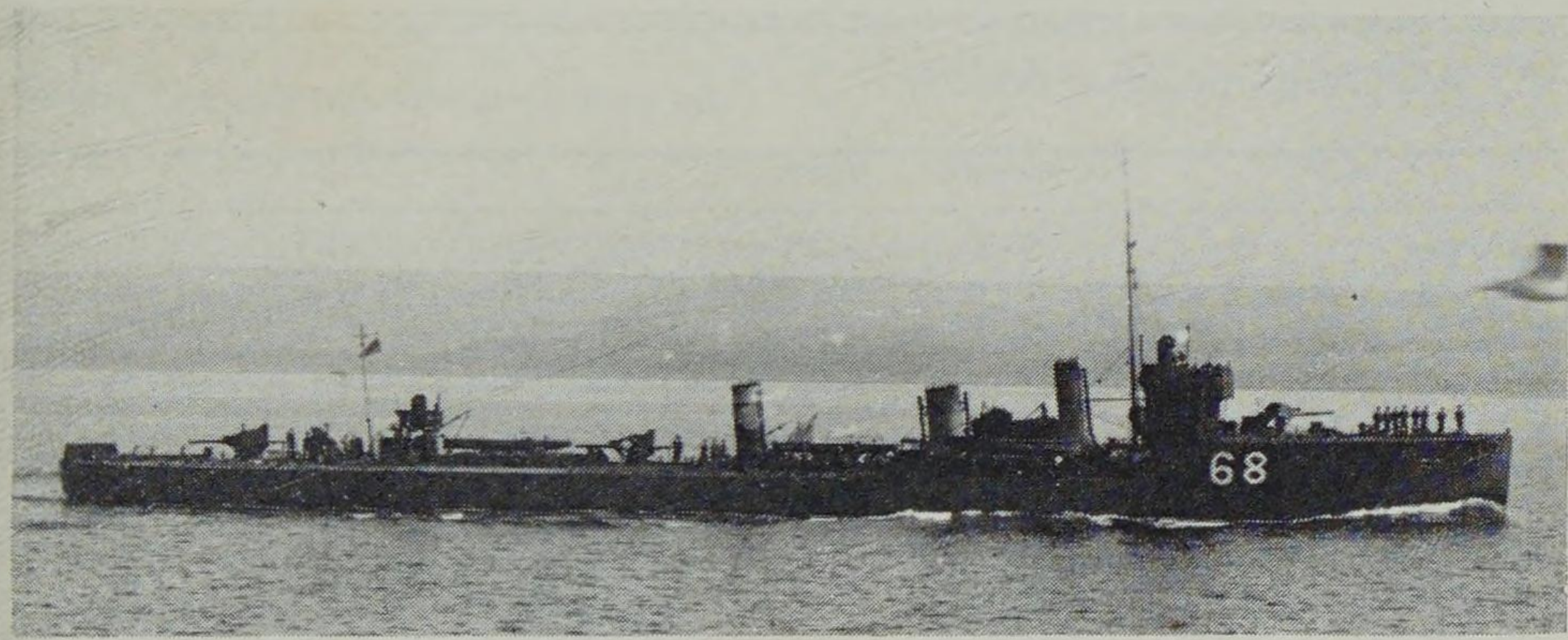
Name	Completed	Builder		
Fortune	1913	F.	1916	Sunk at Jutland.

(4) The prototype for the two-funnelled (Code 22) 'L' class next described.

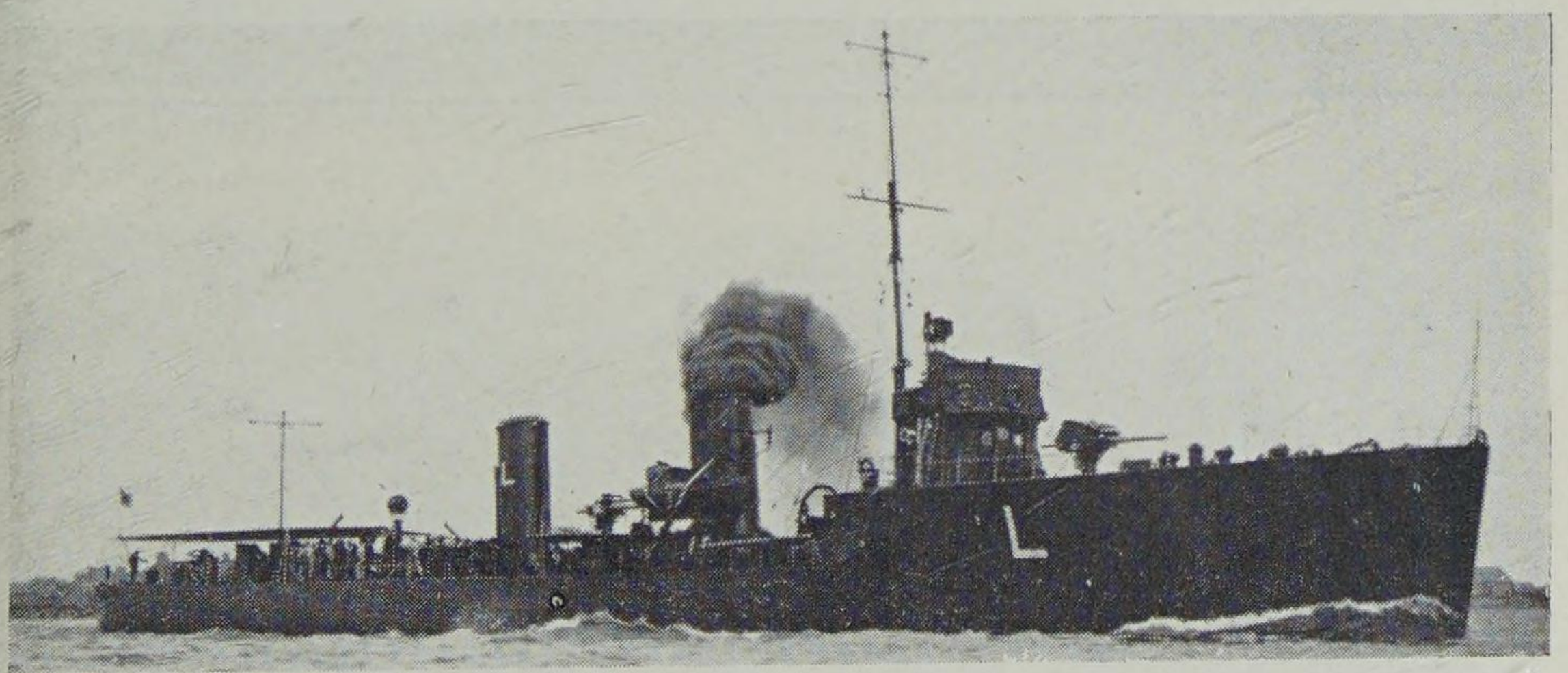
Name	Completed	Builder		
Ardent	1913	Dny.	1916	Sunk at Jutland.



H.M.A.S. *Swan* (Australian ' I ' Class). [*I.W.M.*



H.M.S. *Unity* (' K ' Class). [*I.W.M.*



H.M.S. *Laurel* (Two-funnelled ' L ' Class).

L CLASS

Length: 269 ft. *Beam:* 27½ ft. *Displacement:* 965—1,072 tons.
Turbines. 2 screws. 22,500—24,500 h.p. 29—31 knots.
Guns: 3—4 in., 1—2 pdr. *Torpedo tubes:* 4 (2×2)—21 in. *Complement:* 77.

(1) With two funnels (Code 22).

Name	Completed	Builder		
Landrail	1914	Y.	1921	Sold.
Lark	1913	Y.	1923	Sold.
Laurel	1913	W.	1921	Sold.
Laverock	1914	Y.	1921	Sold.
Liberty	1913	W.	1921	Sold.
Linnet	1913	Y.	1921	Sold.

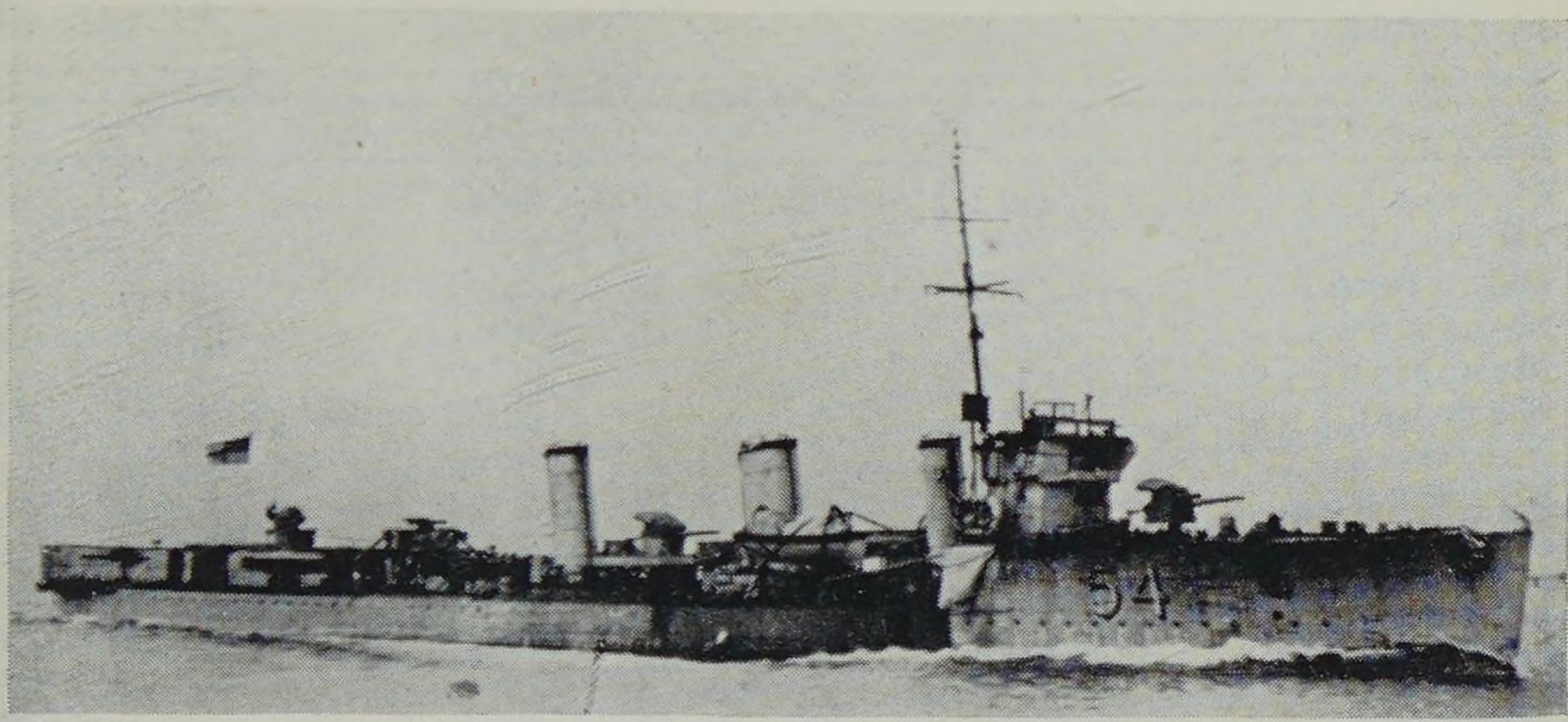
(2) With three funnels (Code 35).

Name	Completed	Builder		
Laertes	1913	SH.	1921	Sold.
Laforey	1913	F.	1917	Mined in the Channel.
Lance	1914	T.	1921	Sold.
Lassoo	1915	WB.	1916	Mined in the North Sea.
Lawford	1913	F.	1922	Sold.
Legion (M.L.)	1914	Dny.	1921	Sold.
Lennox	1914	WB.	1921	Sold.
Leonidas	1913	HL.	1921	Sold.
Llewellyn	1913	WB.	1922	Sold.
Lochinvar	1915	WB.	1921	Sold.
Lookout	1914	T.	1922	Sold.
Louis	1913	F.	1915	Wrecked in Suvla Bay.
Loyal	1913	Dny.	1921	Sold.
Lucifer	1913	HL.	1921	Sold.
Lydiard	1914	F.	1921	Sold.
Lysander	1913	SH.	1922	Sold.

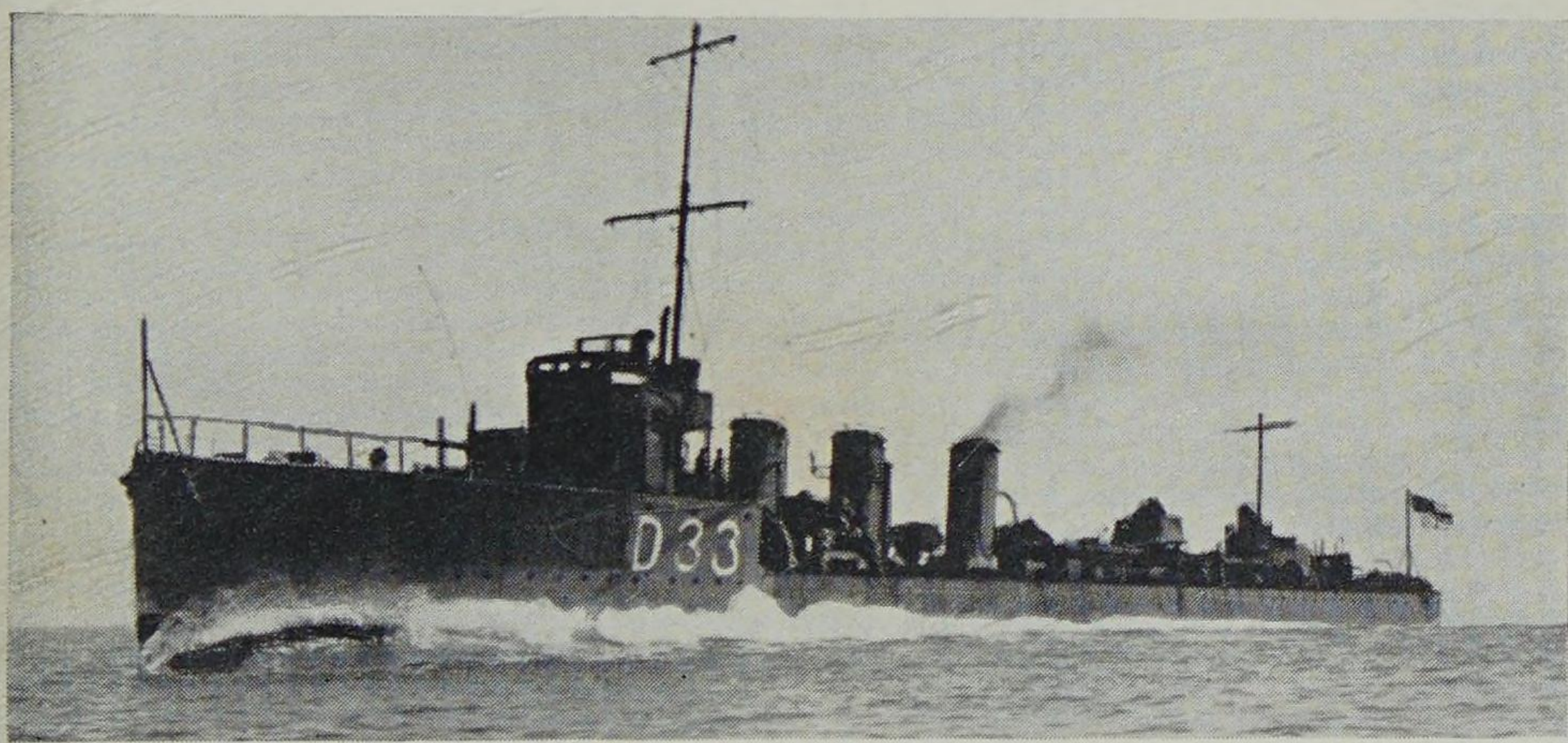
M CLASS

Length: 271—276 ft. *Beam:* 26¾ ft. *Displacement:* 994—1,042 tons.
Turbines. 3 screws. 25,000 h.p. 34 knots.
Guns: 3—4 in., 1—2 pdr. *Torpedo tubes:* 4 (2×2)—21 in.
Complement: 80—98.

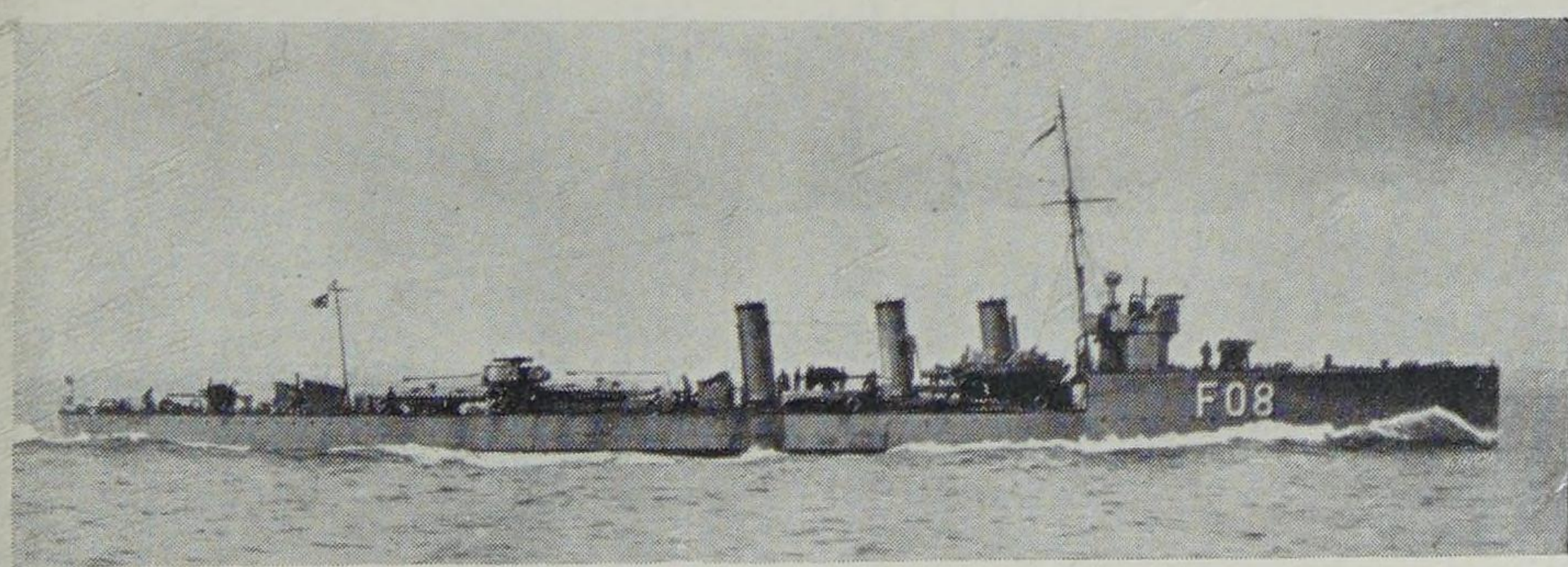
(1) Admiralty M Type. Three funnels (Code 32).
Earlier ships had straight (not raked) stems and shorter funnels.



H.M.S. *Legion* (three-funnelled ' L ' Class) as Mine layer. The mines are concealed behind the painted canvas screens aft. [*I W.M.*



H.M.S. *Murray* (Earlier Admiralty ' M ' Class).



H.M.S. *Oracle* (Admiralty ' M ' Class). [*I.W.M.*

M CLASS

Name	Completed	Builder		
Maenad	1915	Dny.	1921	Sold.
Magic	1916	W.	1921	Sold.
Mameluke	1915	C.	1921	Sold.
Mandate	1915	F.	1921	Sold.
Manners	1915	F.	1921	Sold.
Marmion	1915	SH.	1917	Sunk, collision in North Sea.
Marne	1915	C.	1921	Sold.
Martial	1915	SH.	1921	Sold.
Marvel	1915	Dny.	1921	Sold.
Mary Rose	1916	Pal.	1917	Sunk, action off Norway.
Matchless	1914	SH.	1921	Sold.
Medina	1916	W.	1921	Sold.
Medway	1916	W.	1921	Sold.
Menace	1916	SH.	1921	Sold.
Michael	1915	T.	1921	Sold.
Milbrook	1915	T.	1921	Sold.
Milne	1914	C.	1921	Sold.
Mindful	1915	F.	1921	Sold.
Minion	1915	T.	1921	Sold.
Mischief	1915	F.	1921	Sold.
Mons	1915	C.	1921	Sold.
Moorsom	1915	C.	1921	Sold.
Moresby	1916	W.	1921	Sold.
Morris	1914	C.	1921	Sold.
Munster	1916	T.	1921	Sold.
Murray	1914	Pal.	1921	Sold.
Myngs	1915	Pal.	1921	Sold.
Mystic	1915	Dny.	1921	Sold.
Napier	1916	C.	1921	Sold.
Narborough	1916	C.	1918	Wrecked, off Scapa in snow-storm.
Narwhal	1916	Dny.	1919	Sold.
Negro	1916	Pal.	1916	Sunk, collision in North Sea.
Nepean	1916	T.	1921	Sold.
Nereus	1916	T.	1921	Sold.
Nessus	1915	SH.	1918	Sunk, collision in North Sea.
Nestor	1916	SH.	1916	Sunk at Jutland.
Nicator	1916	Dny.	1921	Sold.
Nizam	1916	St./WB.	1921	Sold.
Noble	1916	St.	1921	Sold.
Nomad	1916	St.	1916	Sunk at Jutland.
Nonpareil	1916	St.	1921	Sold.
Nonsuch	1916	Pal.	1921	Sold.
Norman	1916	Pal.	1921	Sold.
Norseman	1916	Dx.	1921	Sold.
North Star	1917	Pal.	1918	Sunk, action off Zeebrugge.
Northesk	1916	Pal.	1921	Sold.
Nugent	1917	Pal.	1921	Sold.
Obdurate	1916	Sc.	1921	Sold.
Obedient	1916	Sc.	1921	Sold.

M CLASS

Name	Completed	Builder		
Oberon	1916	Dx.	1921	Sold.
Observer	1916	F.	1921	Sold.
Octavia	1916	Dx.	1921	Sold.
Offa	1916	F.	1921	Sold.
Onslaught	1916	F.	1921	Sold.
Onslow	1916	F.	1921	Sold.
Opal	1916	Dx.	1918	Wrecked, off Scapa in snow-storm.
Ophelia	1916	Dx.	1921	Sold.
Opportune	1916	Dx.	1923	Sold.
Oracle	1916	Dx.	1921	Sold.
Orcadia	1916	F.	1921	Sold.
Orestes	1916	Dx.	1921	Sold.
Orford	1916	Dx.	1921	Sold.
Oriana	1916	F.	1921	Sold.
Oriole	1916	Pal.	1921	Sold.
Orpheus	1916	Dx.	1921	Sold.
Osiris	1916	Pal.	1921	Sold.
Ossory	1915	C.	1921	Sold.
Paladin	1916	Sc.	1921	Sold.
Parthian	1916	Sc.	1921	Sold.
Partridge	1916	SH.	1917	Sunk, action off Norway.
Pasley	1916	SH.	1921	Sold.
Pelican	1916	WB.	1921	Sold.
Pellew	1916	WB.	1921	Sold.
Penn	1916	C.	1921	Sold.
Peregrine	1916	C.	1921	Sold.
Petard	1916	Dny.	1921	Sold.
Peyton	1916	Dny.	1921	Sold.
Pheasant	1916	F.	1917	Mined off the Orkneys.
Phoebe	1916	F.	1921	Sold.
Pigeon	1916	HL.	1921	Sold.
Plover	1916	HL.	1921	Sold.
Plucky	1916	Sc.	1921	Sold.
Portia	1916	Sc.	1921	Sold.
Prince	1916	St.	1921	Sold.
Pylades	1916	St./WB.	1921	Sold.

(2) Hawthorn M Type. Four funnels (Code 44).
As Admiralty M but
Beam: 27½ ft. 1,055 tons. 2 screws. 27,000 h.p. 35 knots.

Name	Completed	Builder		
Mansfield	1915	HL.	1921	Sold.
Mentor	1915	HL.	1921	Sold.

(3) Yarrow M Type. Two funnels (Code 22).
As Admiralty M but
Length: 269½—271½ ft. 880—900 tons. 2 screws. 23,000 h.p. 34—39 knots.

Name	Completed	Builder		
Manly	1914	Y.	1921	Sold.
Minos	1914	Y.	1920	Sold.
Miranda	1914	Y.	1921	Sold.
Moon	1915	Y.	1921	Sold.
Morning Star	1915	Y.	1921	Sold.
Mounsey	1915	Y.	1921	Sold.
Musketeer	1915	Y.	1921	Sold.
Nerissa	1916	Y.	1921	Sold.
Relentless	1916	Y.	1926	Sold.
Rival	1916	Y.	1926	Sold.

(4) Yarrow later M Type. As (3) above but 900—925 tons.

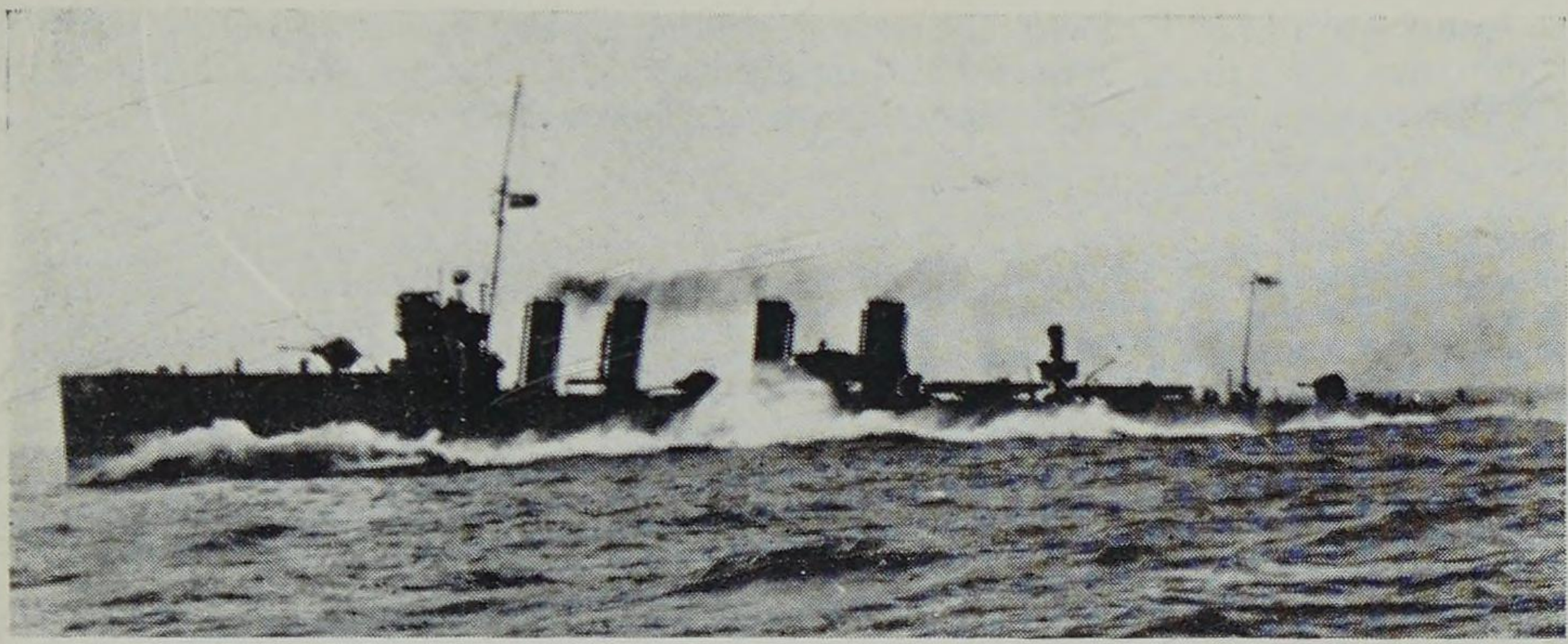
Name	Completed	Builder		
Sabrina	1916	Y.	1927	Sold.
Strongbow	1916	Y.	1917	Sunk, action off Norway.
Surprise	1917	Y.	1917	Mined in the North Sea.
Sybille	1917	Y.	1926	Sold.
Truculent	1917	Y.	1927	Sold.
Tyrant	1917	Y.	1939	Sold.
Ulleswater	1917	Y.	1918	Torpedoed, U-boat off Dutch Coast.

(5) Thornycroft M Type. Three funnels (Code 35).
As Admiralty M but
985—1,070 tons. 2 screws. 27,000 h.p. 35—37 knots.

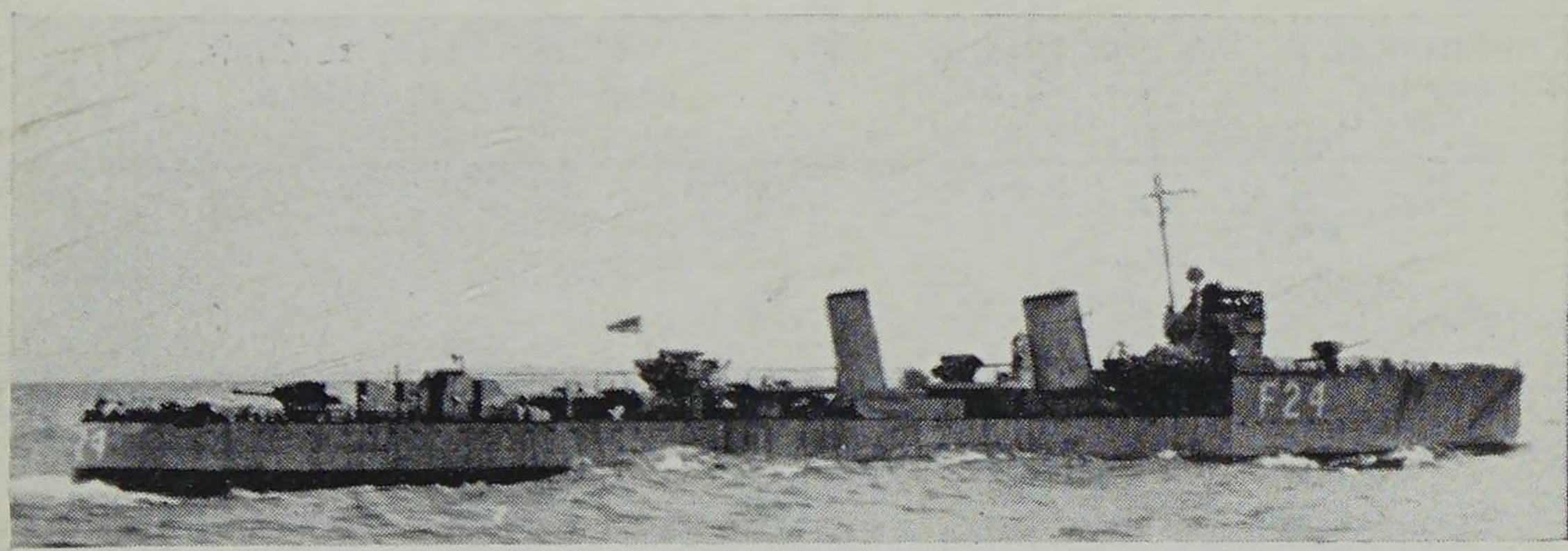
Name	Completed	Builder		
Mastiff	1914	T.	1921	Sold.
Meteor (M.L.)	1914	T.	1921	Sold.
Patrician	1916	T.	1920	to Canada. 1928 Drillship (Pacific Coast).
Patriot	1916	T.	1920	to Canada. 1928 Drillship (Atlantic Coast).
Rapid	1916	T.	1927	Sold.
Ready	1916	T.	1926	Sold.

(6) Ex-Greek M Type. Three funnels (Code 33h).
Generally similar to Admiralty M Type. Ordered by Greece and taken over in 1914.

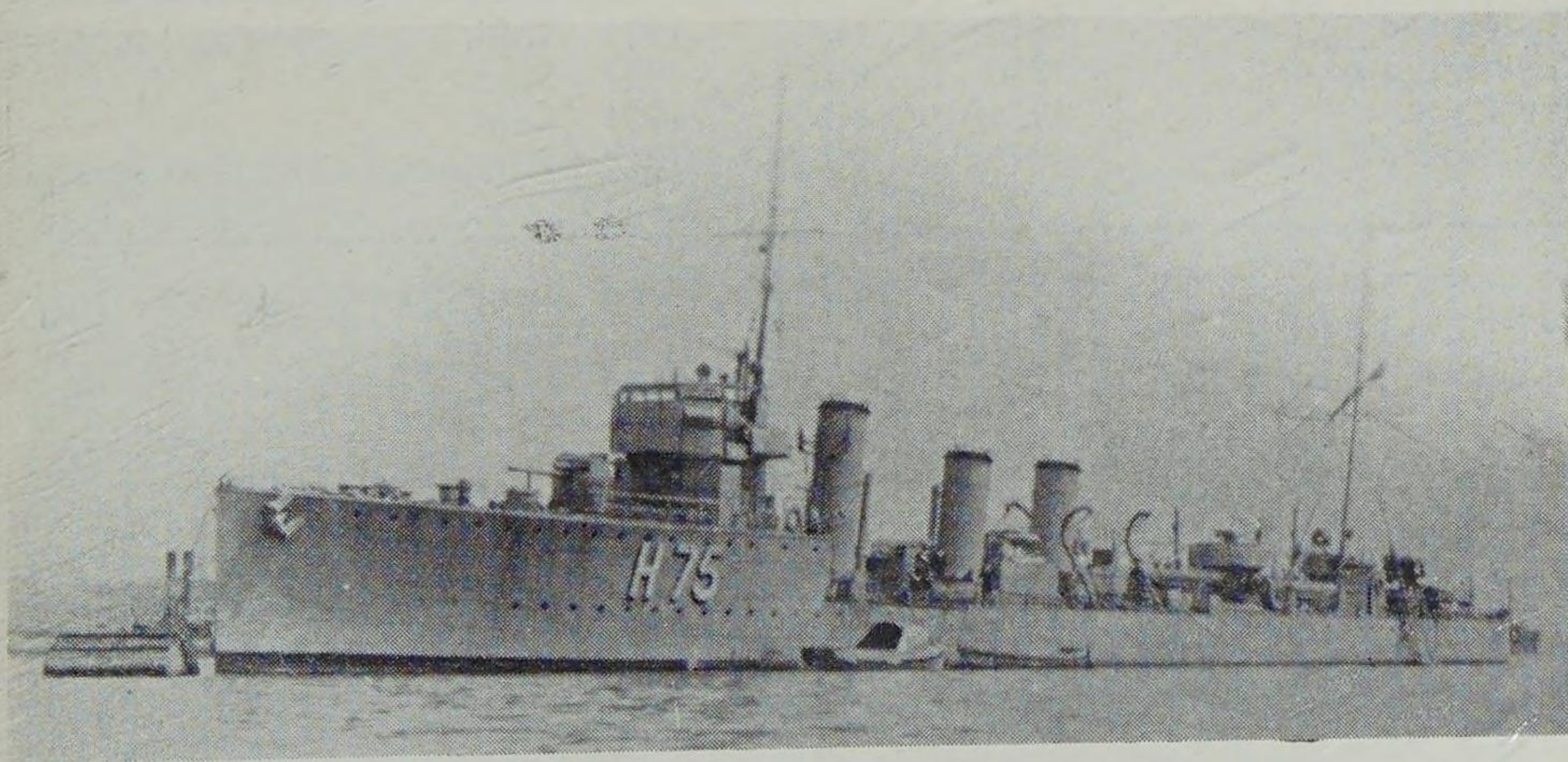
Name	Completed	Builder		
Medea	1915	C.	1921	Sold.
Medusa	1915	C.	1916	Sunk, collision off Denmark.
Melampus	1915	F.	1921	Sold.
Melpomene	1915	F.	1921	Sold.



H.M.S. *Mansfield* (Hawthorn ' M ' Class). [*I.W.M.*



H.M.S. *Rival* (Yarrow ' M ' Class). [*N.P.C.*



H.M.S. *Melampus* (ex-Greek ' M ' Class). [*N.P.C.*

Apart from H.M.S. *Swift*, the only destroyer leaders projected before the war were two Marksman class. Fortunately two lots of four ships, ordered by foreign powers, were under construction and taken over.

BOTHA CLASS LEADERS

Chilean Almirante class. Four funnels (Code 46h).
Length: 331⅓ ft. *Beam:* 32½ ft. *Displacement:* 1,694—1,742 tons.
Turbines. 3 screws. 30,000 h.p. 32 knots.
Guns: 4—4 in.*, 2—2 pdr. *Torpedo tubes:* 4 (2×2)—21 in. *Complement:* 205.
* Later 2—4.7 in., 2—4 in.

Name	Completed	Builder		
Botha	1914	W.	1920	Sold back to Chile.
Broke	1914	W.	1920	Sold back to Chile.
Faulknor	1914	W.	1920	Sold back to Chile.
Tipperary	1915	W.	1916	Sunk at Jutland.

TALISMAN CLASS

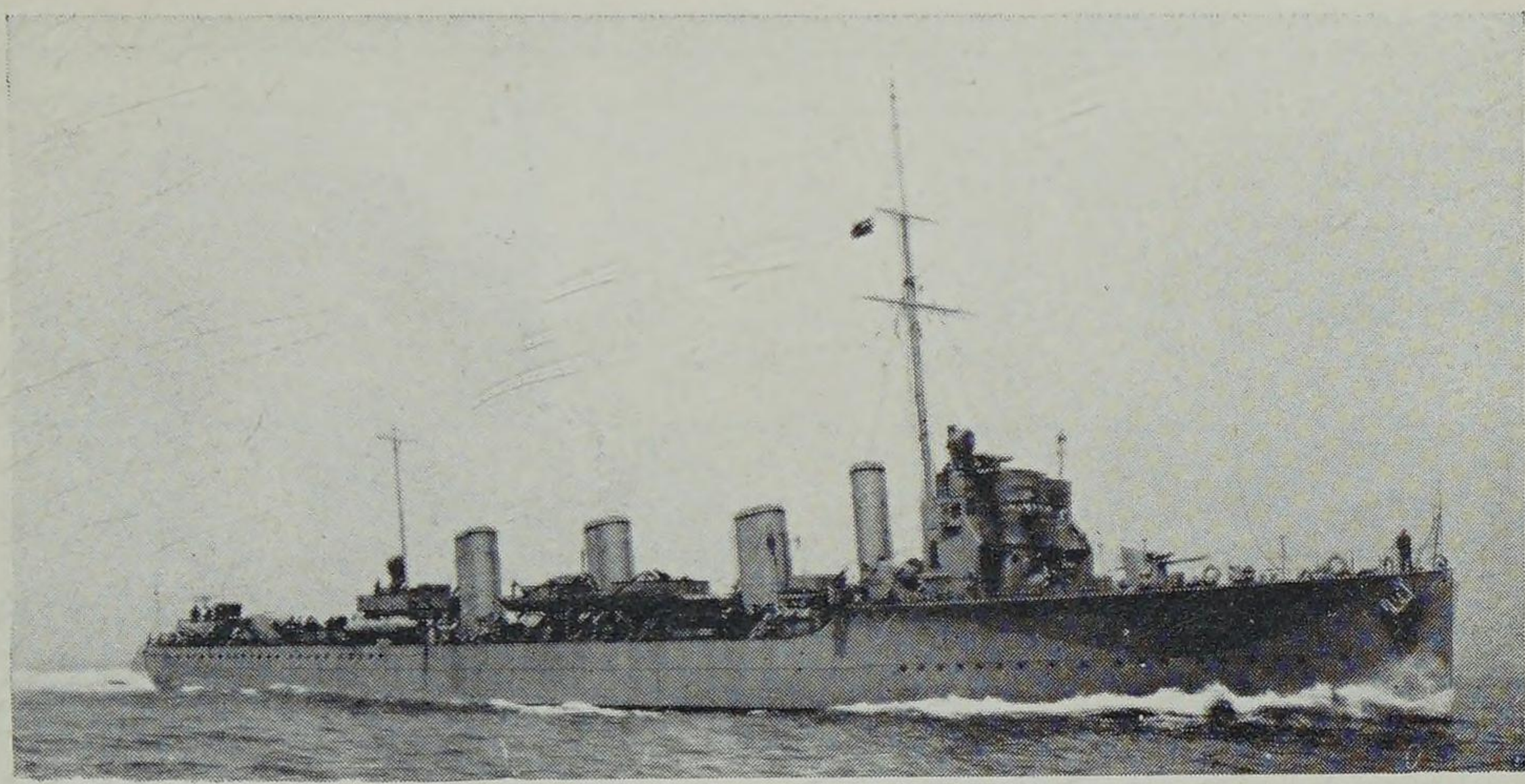
Ex-Turkish ships. Three funnels (Code 33).
Length: 309 ft. *Beam:* 28 ft. *Displacement:* 1,098 tons.
Turbines. 3 screws. 25,000 h.p. 32 knots.
Guns: 5—4 in. *Torpedo tubes:* 4 (2×2)—21 in. *Complement:* 102.

Name	Completed	Builder		
Talisman	1916	HL.	1921	Sold.
Termagant	1916	HL.	1921	Sold.
Trident	1916	HL.	1921	Sold.
Turbulent	1916	HL.	1916	Rammed and sunk at Jutland

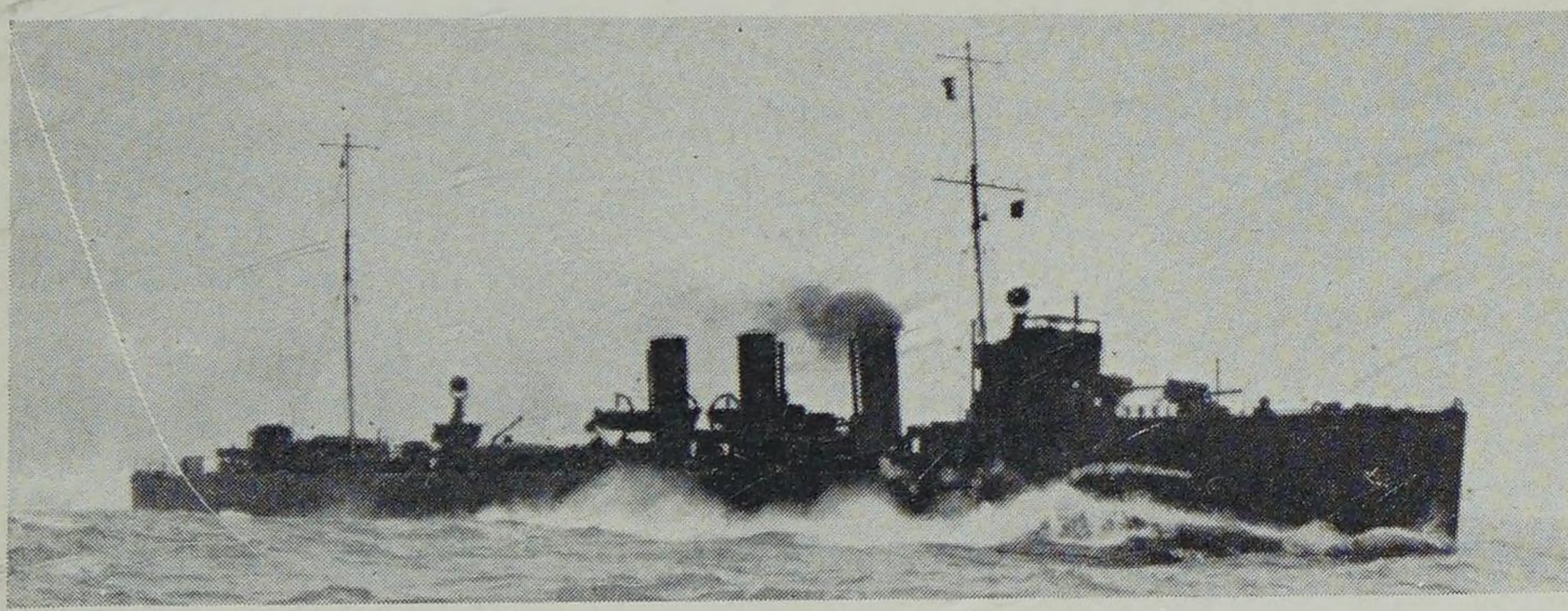
A more heavily-armed version of the M class, they proved very successful when acting as Leaders.

MARKSMAN CLASS LEADERS

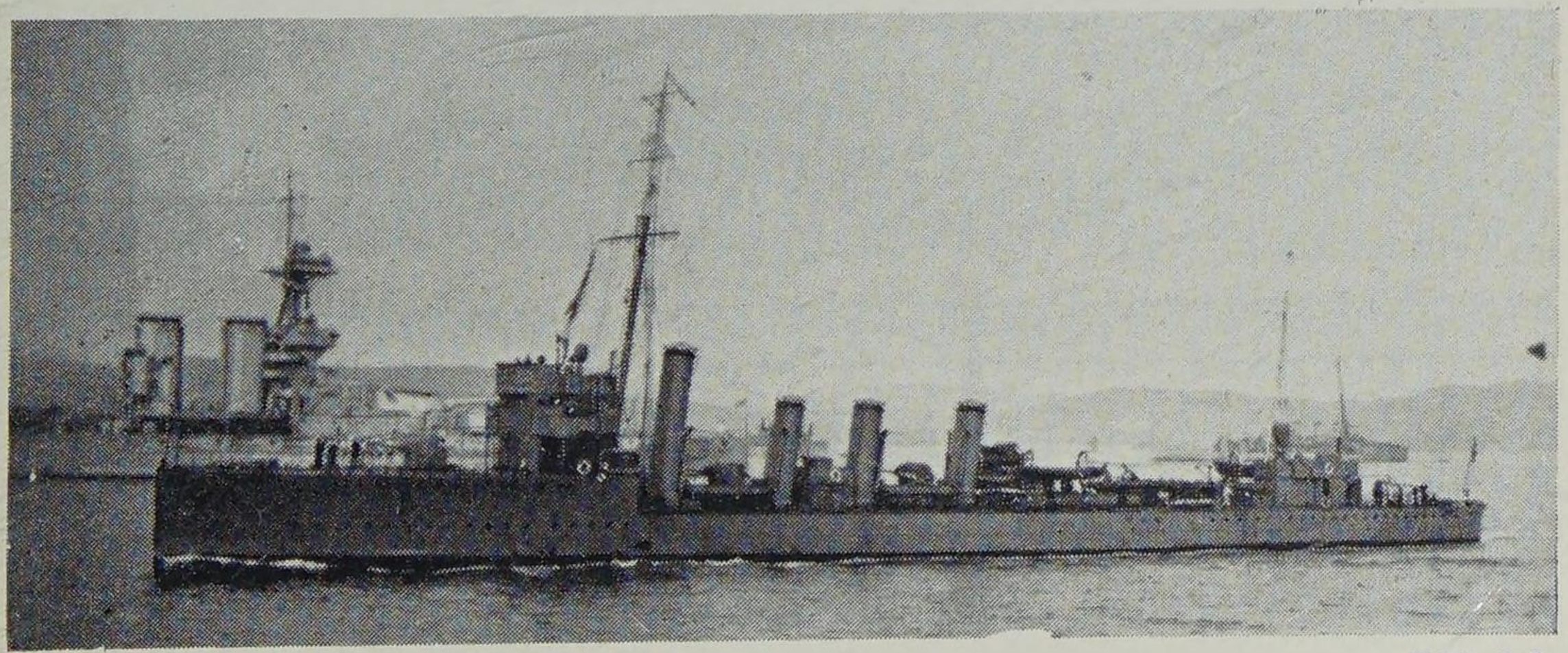
Length: 325 ft. *Beam:* 31¾ ft. *Displacement:* 1,604—1,655 tons.
Turbines. 3 screws. 36,000 h.p. 34 knots.
Guns: 4—4 in., 1—3 in. A.A. 2—2 pdr. *Torpedo tubes:* 4 (2×2)—21 in.
Complement: 106—116.
(1) Four funnels (Code 42 later 42h).



H.M.S. *Tipperary* (Broke Class Leader). [I.W.M.



H.M.S. *Talisman*. [I.W.M.



H.M.S. *Ithuriel* (Marksman Class Leader). [H.S. & P

MARKSMAN CLASS

Name	Completed	Builder	
Gabriel (M.L.)	1916	CL.	1921 Sold.
Ithuriel	1916	CL.	1921 Sold.
Kempenfelt	1915	CL.	1921 Sold.
Lightfoot	1915	W.	1921 Sold.
Marksman	1915	HL.	1921 Sold.
Nimrod	1915	Dny.	1926 Sold.

(2) Mine-layer. Four funnels (Code 42, not heightened).
As above but 3—4 in. guns, no torpedo tubes, 72 mines.

Name	Completed	Builder	
Abdiel (M.L.)	1916	CL.	1936 Sold.

LATER MARKSMAN CLASS LEADERS

As above but 1,670 tons and three funnels (Code 36h).

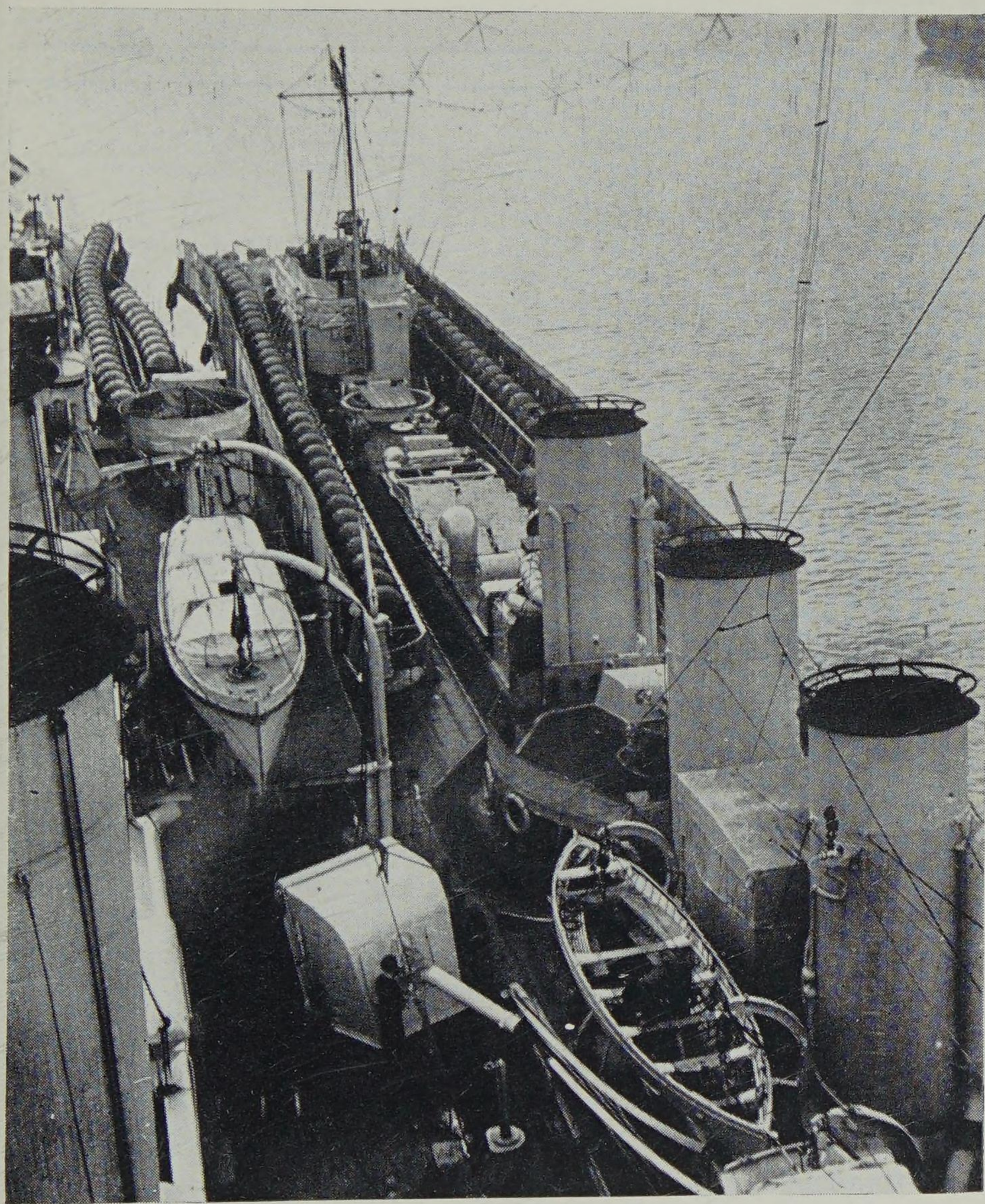
Name	Completed	Builder	
Anzac	1917	Dny.	1919 To Australia. 1934 Discarded.
Grenville	1916	CL.	1931 Sold.
Hoste	1916	CL.	1916 Sunk, collision in North Sea.
Parker	1916	CL.	1921 Sold.
Saumarez	1916	CL.	1930 Sold.
Seymour	1916	CL.	1929 Sold.

R CLASS

Very similar to the M Class but with geared turbines and distinguished by having the after 4 in. gun mounted on a " bandstand ".
Length: 275 ft. *Beam:* 26¾ ft. *Displacement:* 1,036—1,096 tons.
Geared turbines. 2 screws. 27,000 h.p. 36 knots.
Guns: 3—4 in., 1—2 pdr. *Torpedo tubes* 4 (2 × 2)—21 in. *Complement:* 82—98.

(1) Admiralty R Type. Three funnels (Code 32).

Name	Completed	Builder	
Radstock	1916	SH.	1927 Sold.
Raider	1916	SH.	1927 Sold.
Recruit	1917	Dx.	1917 Mined in North Sea.
Redgauntlet	1917	Dny.	1926 Sold.
Redoubt	1917	Dx.	1926 Sold.
Restless	1916	C.	1936 Sold.



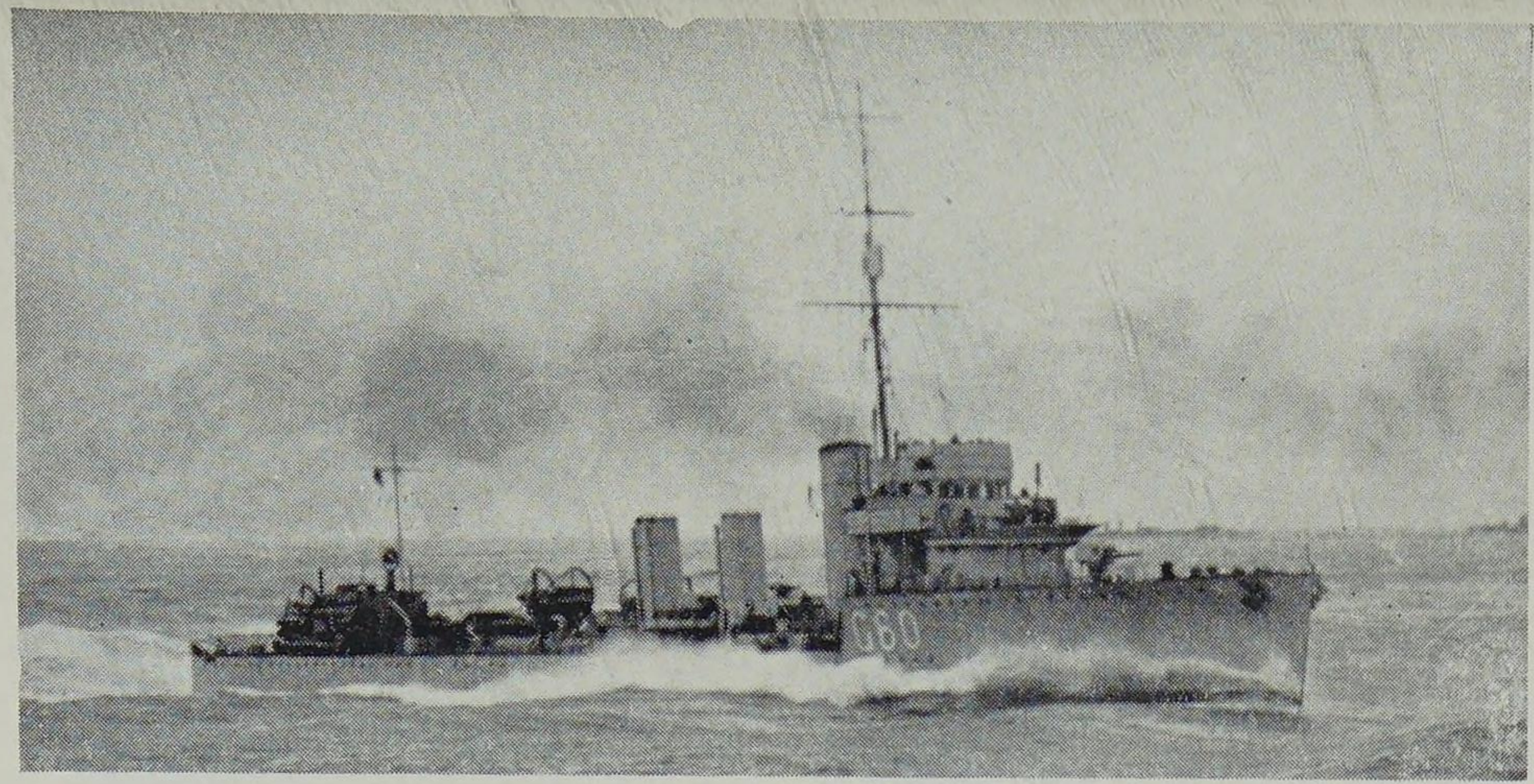
H.M.S. *Abdiel* (Marksman Class) alongside a light cruiser, both with full complement of mines. [*I.W.M.*

R CLASS

Name	Completed	Builder		
Rigorous	1916	C.	1926	Sold.
Rob Roy	1916	Dny.	1926	Sold.
Rocket	1916	Dny.	1926	Sold.
Romola	1916	C.	1930	Sold.
Rowena	1916	C.	1937	Sold.
Sable	1916	W.	1927	Sold.
Salmon	1916	H. & W.(G)	1933	Renamed *Sable*. 1937 Sold.
Sarpedon	1916	HL.	1926	Sold.
Satyr	1917	WB.	1926	Sold.
Sceptre	1917	St.	1926	Sold.
Setter	1917	W.	1917	Sunk, collision off Harwich in fog.
Sharpshooter	1917	WB.	1927	Sold.
Simoom	1916	C.	1917	Sunk, action in the North Sea.
Skate	1917	C.	1947	Scrapped.
Skilful	1917	H. & W.(G)	1926	Sold.
Sorceress	1916	SH.	1927	Sold.
Springbok	1917	H. & W.(G)	1926	Sold.
Starfish	1916	HL.	1928	Sold.
Stork	1917	HL.	1927	Sold.
Sturgeon	1917	St.	1926	Sold.
Sylph	1917	H. & W.(G)	1926	Sold.
Tancred	1917	WB.	1928	Sold.
Tarpon (M.L.)	1917	C.	1927	Sold.
Telemachus (M.L.)	1917	C.	1926	Sold.
Tempest	1917	F.	1937	Sold.
Tenacious	1917	H. & W.(G)	1928	Sold.
Tetrarch	1917	H. & W.(G)	1934	Sold.
Thisbe	1917	HL.	1937	Sold.
Thruster	1917	HL.	1937	Sold.
Tormentor	1917	St.	1929	Sold.
Tornado	1917	St.	1917	Mined in the North Sea.
Torrent	1917	SH.	1917	Mined in the North Sea.
Torrid	1917	SH.	1937	Sold.

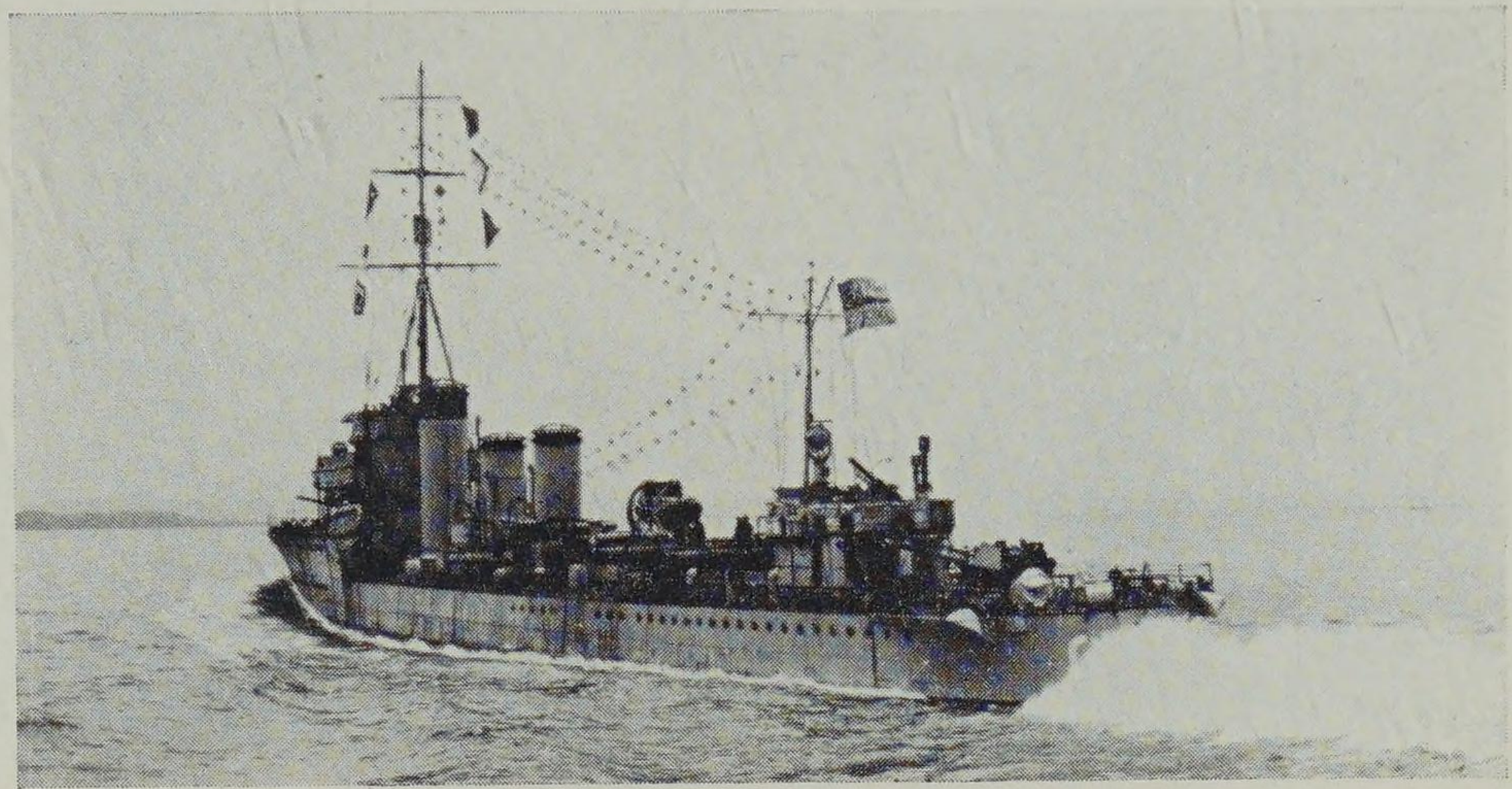
(2) Thornycroft R Type. Three funnels (Code 35).
As Admiralty type (1), but 29,000 h.p. 37—40 knots.

Name	Completed	Builder		
Radiant	1917	T.	1920	Became Siamese *Phra Ruang*.
Retriever	1917	T.	1927	Sold.
Rosalind	1916	T.	1926	Sold.
Taurus	1917	T.	1930	Sold.
Teazer	1917	T.	1931	Sold.



H.M.S. *Anzac* (Later Marksman Class Leader).

[*I.W.M*



H.M.S. *Seymour* (Later Marksman Class Leader).

[*I.W.M.*

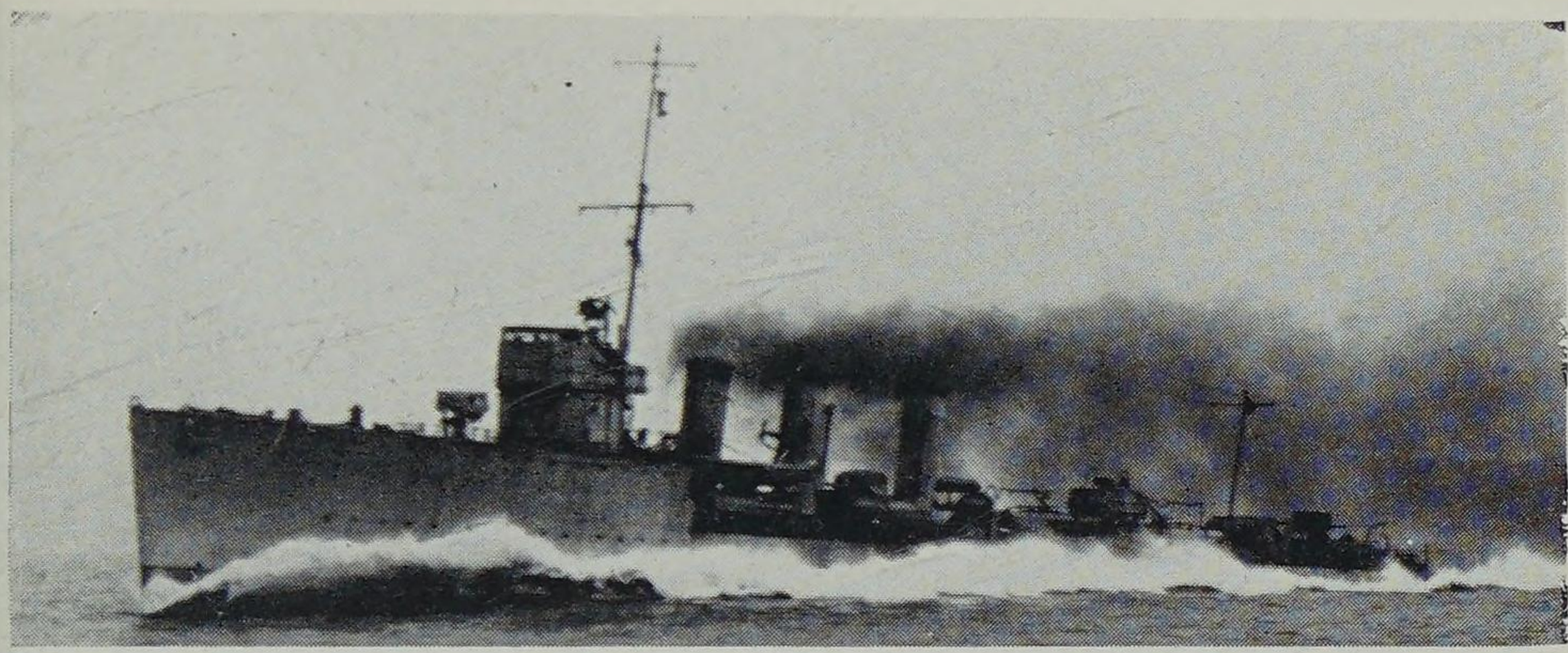
(3) Modified Admiralty R Type. Two funnels (Code 22).
As (1) but length 276 ft., 1,085—1091 tons. They incorporated the advantages of the Yarrow M's, from which they can be distinguished by their longer forecastles.

Name	Completed	Builder		
Tirade	1917	Sc.	1921	Sold.
Tower	1917	SH.	1928	Sold.
Trenchant	1917	W.	1928	Sold.
Tristram	1917	W.	1921	Sold.
Ulster	1917	WB.	1928	Sold.
Ulysses	1917	Dx.	1918	Sunk, collision in Firth of Clyde.
Umpire	1917	Dx.	1930	Sold.
Undine	1917	F.	1928	Sold.
Urchin	1917	Pal.	1930	Sold.
Ursa	1917	Pal.	1926	Sold.
Ursula	1917	Sc.	1929	Sold.

S CLASS

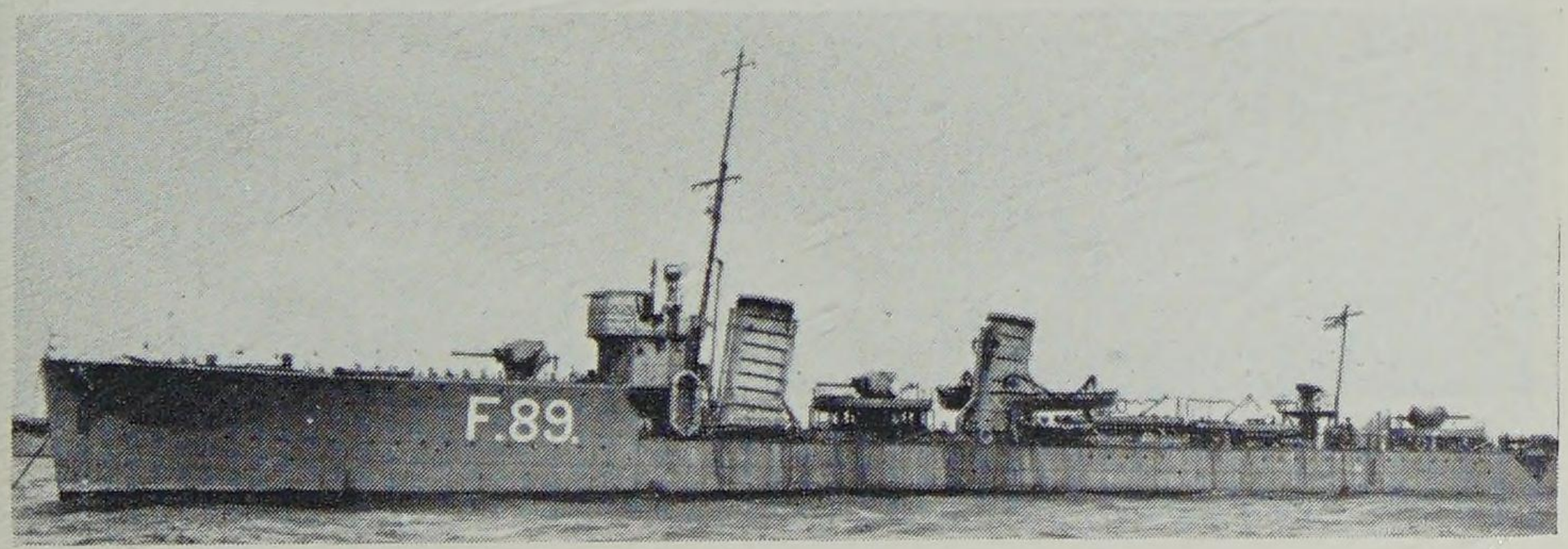
Length: 275—277 ft. *Beam:* 26⅔ ft. *Displacement:* 1,075 tons.
Geared turbines. 2 screws. 27,000 h.p. 36 knots.
Guns: 3—4 in., 1—2 pdr. *Torpedo tubes:* 4 (2×2)—21 in., 2—14 in.*
Complement: 90.
* Later removed.
NOTE: Distinguished from the ships last described by higher funnels and by their forecastles which were flared forward and slightly turtle-backed.
(1) Admiralty Type. Two funnels (Code 22h).

Name	Completed	Builder		
Sabre	1918	St.	1946	Scrapped.
Saladin	1919	St.	1947	Scrapped.
Sardonyx	1919	St.	1948	Scrapped.
Scimitar	1918	C.	1947	Scrapped.
Scotsman	1918	C.	1937	Sold.
Scout	1918	C.	1948	Scrapped.
Scythe	1918	C.	1931	Sold.
Seabear	1918	C.	1930	Sold.
Seafire	1918	C.	1935	Sold.
Searcher	1918	C.	1938	Sold.
Seawolf	1919	C.	1931	Scrapped.



H.M.S. *Thruster* (Admiralty ' R ' Class). [*I.W.M.*

H.M.S. *Rosalind* (Thornycroft ' R ' Class).



H.M.S. *Tristram* (Admiralty modified ' R ' Class) with ribbed funnels. *I.W.M.*

Above: Destroyers screening the Grand Fleet in the North Sea during the War.

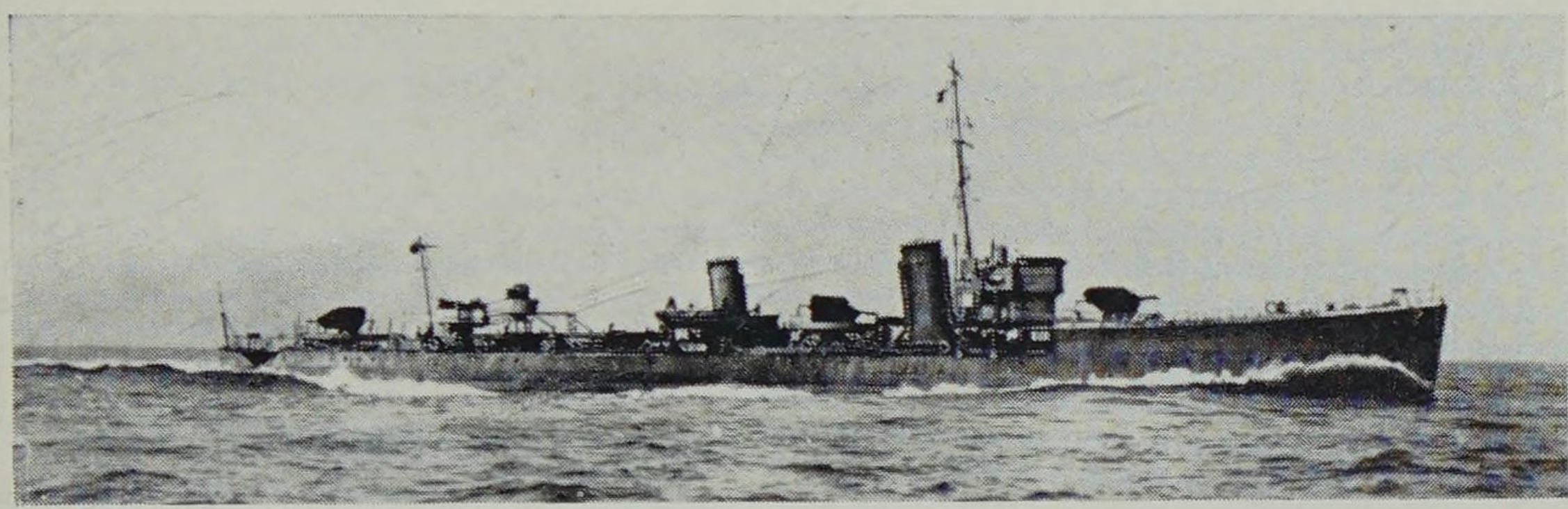
Below: Destroyer Pens on the Forth. In the foreground H.M.S. *Patrician*, Thorn

foreground three Admiralty ' M's ' and a Marksman Class Leader. [I W.M.

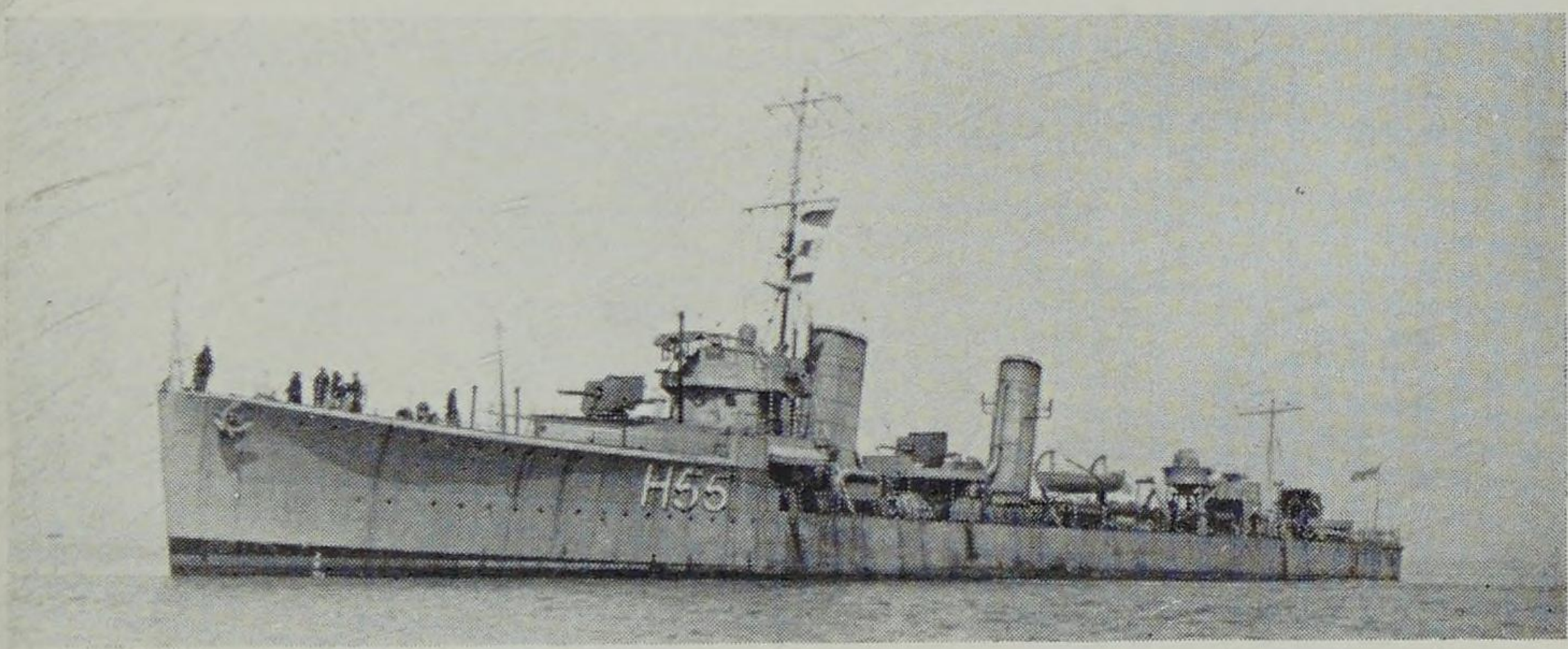
M' class . (GA1). [I W.M.

S CLASS

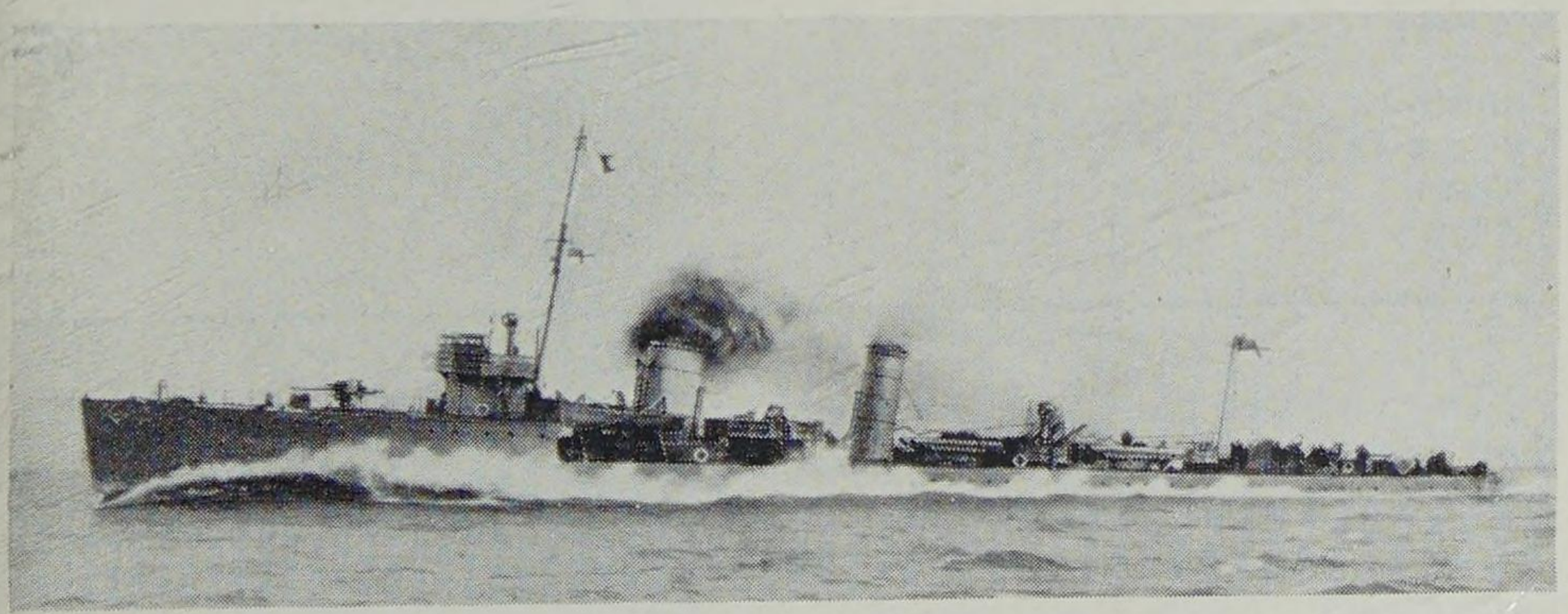
Name	Completed	Builder	
Senator	1918	Dny.	1935 Sold.
Sepoy	1918	Dny.	1932 Sold.
Seraph	1918	Dny.	1934 Sold.
Serapis	1919	Dny.	1932 Sold.
Serene	1919	Dny.	1935 Sold.
Sesame	1919	Dny.	1933 Sold.
Shamrock	1919	Dx.	1936 Sold.
Shark	1918	SH.	1930 Sold.
Shikari	1924[1]	Dx.	1945 Scrapped.
Sikh	1918	F.	1927 Sold.
Simoom	1918	C.	1930 Sold.
Sirdar	1918	F.	1933 Sold.
Somme	1918	F.	1932 Sold.
Sparrowhawk	1918	SH.	1930 Sold.
Spear	1918	F.	1926 Sold.
Spindrift	1919	F.	1936 Sold.
Splendid	1918	SH.	1930 Sold.
Sportive	1918	SH.	1936 Sold.
Stalwart	1919	SH.	1919 To Australia. 1936 Discarded.
Steadfast	1919	Pal.	1933 Sold.
Sterling	1919	Pal.	1932 Sold.
Stonehenge	1919	Pal.	1920 Wrecked in Gulf of Smyrna.
Stormcloud	1919	Pal.	1933 Sold.
Strenuous	1919	Sc.	1933 Sold.
Stronghold	1919	Sc.	1942 Sunk, action with Japanese off Java.
Sturdy	1919	Sc.	1940 Wrecked, W. Coast of Scotland.
Success	1919	Dx.	1919 To Australia. 1936 Discarded.
Swallow	1918	Sc.	1936 Sold.
Swordsman	1919	Sc.	1919 To Australia. 1936 Discarded.
Tactician	1918	WB.	1930 Sold.
Tara	1918	WB.	1931 Sold.
Tasmania	1919	WB.	1919 To Australia. 1936 Discarded.
Tattoo	1919	WB.	1919 To Australia. 1936 Discarded.
Tenedos	1919	HL.	1942 Bombed and sunk at Colombo.
Thanet	1919	HL.	1942 Sunk, action with Japanese off Malaya.
Thracian	1922[2]	HL.	1941 Beached at Hong Kong, salved by Japanese, recaptured 1945, scrapped 1946.
Tilbury	1918	SH.	1930 Sold.
Tintagel	1918	SH.	1931 Sold.
Tribune	1918	W.	1933 Sold.
Trinidad	1918	W.	1931 Sold.
Trojan	1918	W.	1936 Sold.
Truant	1919	W.	1931 Sold.
Trusty	1919	W.	1936 Sold.
Turbulent	1919	HL.	1936 Sold.



H.M.S. *Shamrock* (Admiralty ' S ' Class). [*I.W.M.*



H.M.S. *Toreador* (Thornycroft ' S ' Class).



H.M.S. *Tyrian* (Yarrow ' S ' Class). [*Messrs. Yarrow & Co. Ltd.*

Sister ships: *Saturn* and *Sycamore* cancelled.

[1] Completed at Chatham Dockyard. [2] Completed at Sheerness Dockyard.

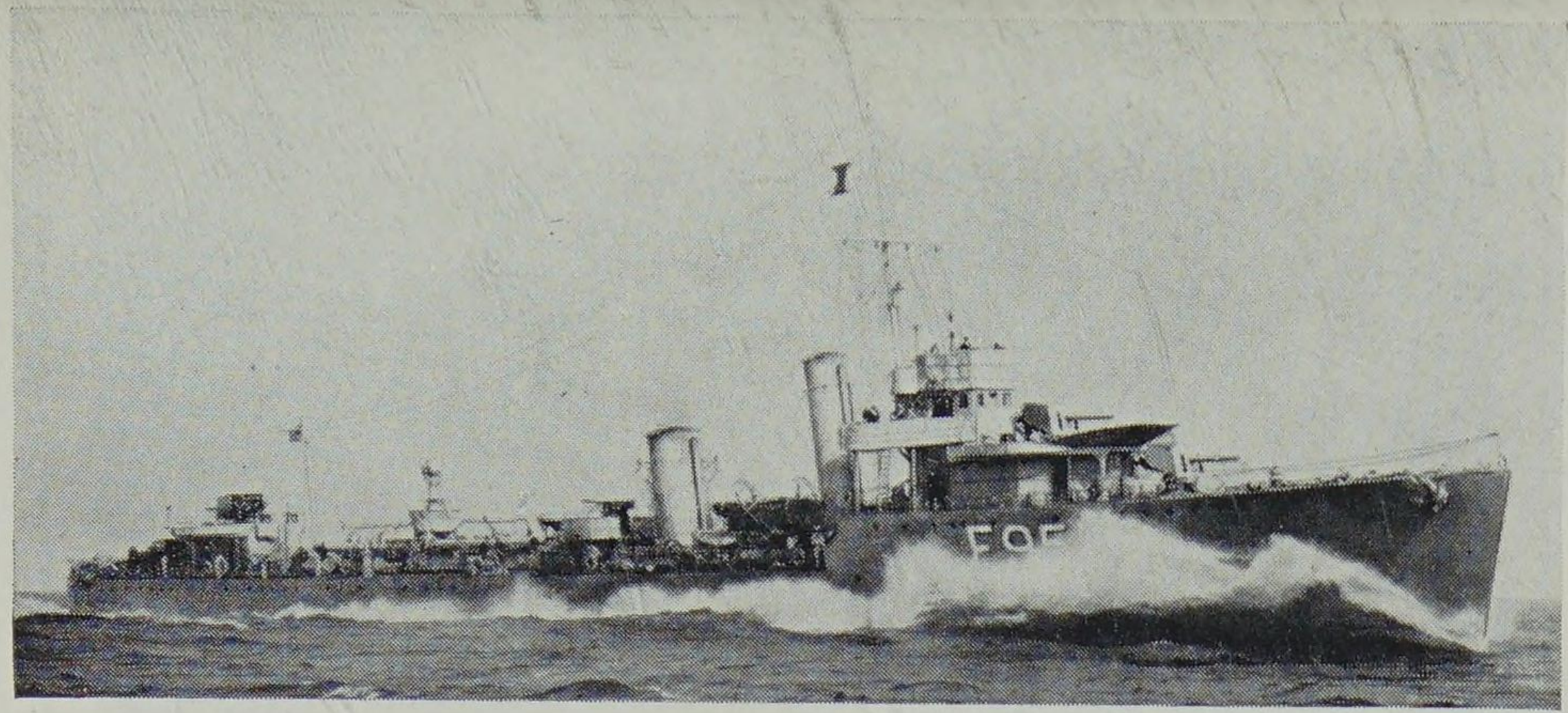
(2) Thornycroft S Type. Two funnels (Code 22, tall and flat-sided).
As Admiralty Type (1), but 1,087 tons, 29,000 h.p., 36—38 knots.

Name	Completed	Builder		
Speedy	1918	T.	1922	Sunk, collision in Sea of Marmora.
Tobago	1918	T.	1920	Mined in Black Sea. 1922 Scrapped.
Torbay	1918	T.	1928	R.C.N. *Champlain*. 1936 Discarded.
Toreador	1918	T.	1928	R.C.N. *Vancouver*. 1936 Discarded.
Tourmaline	1918	T.	1931	Sold.

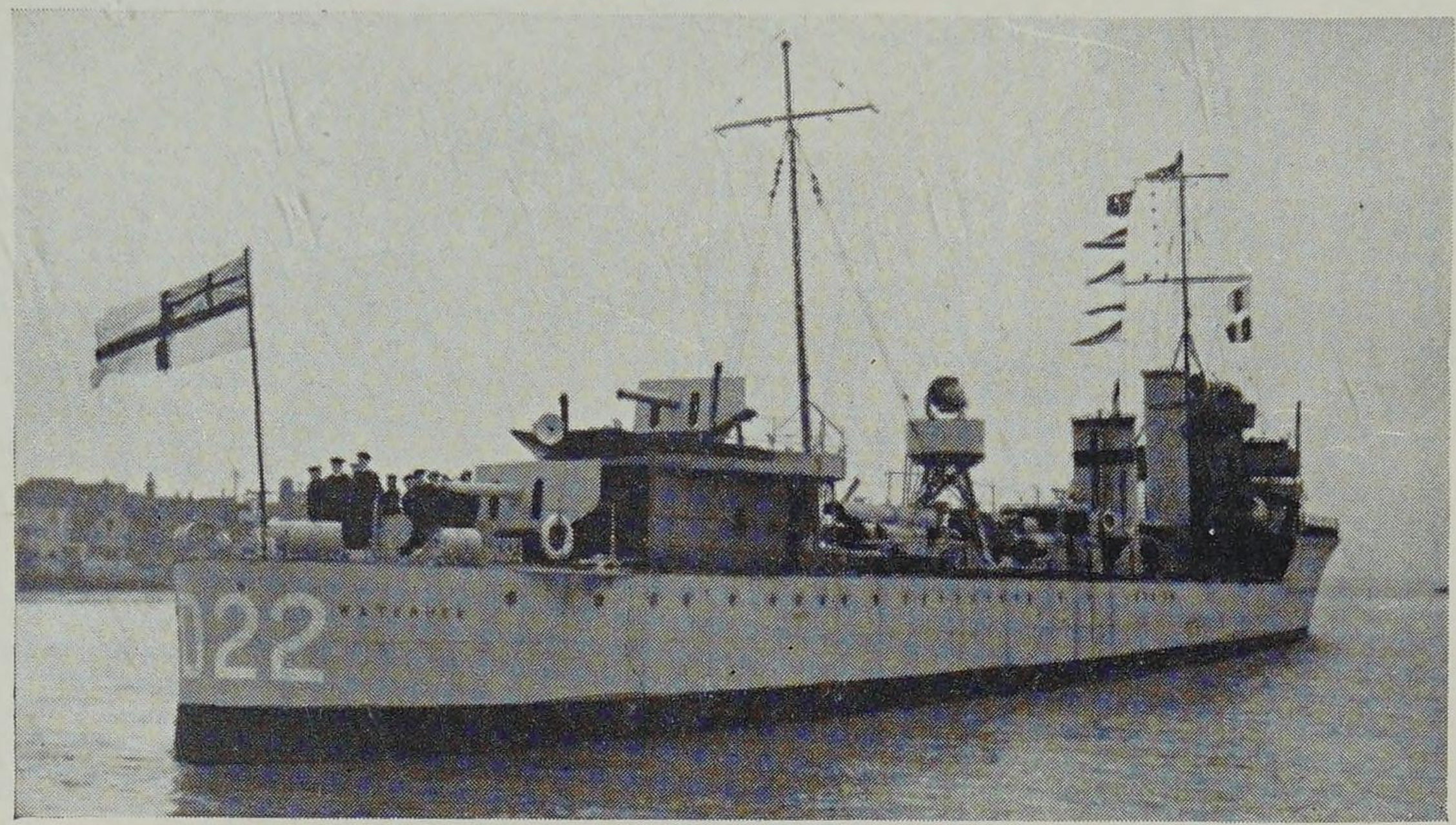
(3) Yarrow S Type. Two funnels (Code 22h).
As Admiralty Type (1) but 930 tons, 23,000 h.p., 36—39 knots.

Name	Completed	Builder		
Tomahawk	1918	Y.	1928	Sold.
Torch	1918	Y.	1929	Sold.
Tryphon	1918	Y.	1919	Wrecked on Mudros. 1920 Sold.
Tumult	1918	Y.	1928	Sold.
Turquoise	1919	Y.	1931	Sold.
Tuscan	1919	Y.	1932	Sold.
Tyrian	1919	Y.	1930	Sold.

This concludes the principal wartime group of destroyers which mounted three 4 in. guns. Ships of this general design, from classes K to S, totalled 276 and bore the brunt of the fighting. Listed next are the larger ships mounting four 4 in. guns and triple torpedo tubes which formed the basis of post-war development. Lastly there were the later Leaders with five 4.7 in. guns but still lighter than the old *Swift* of 1907.



H.M.S. *Violent* (Admiralty 'V' Class). [*I.W.M.*



H.M.S. *Waterhen* (Admiralty 'W' Class).

V and W CLASSES

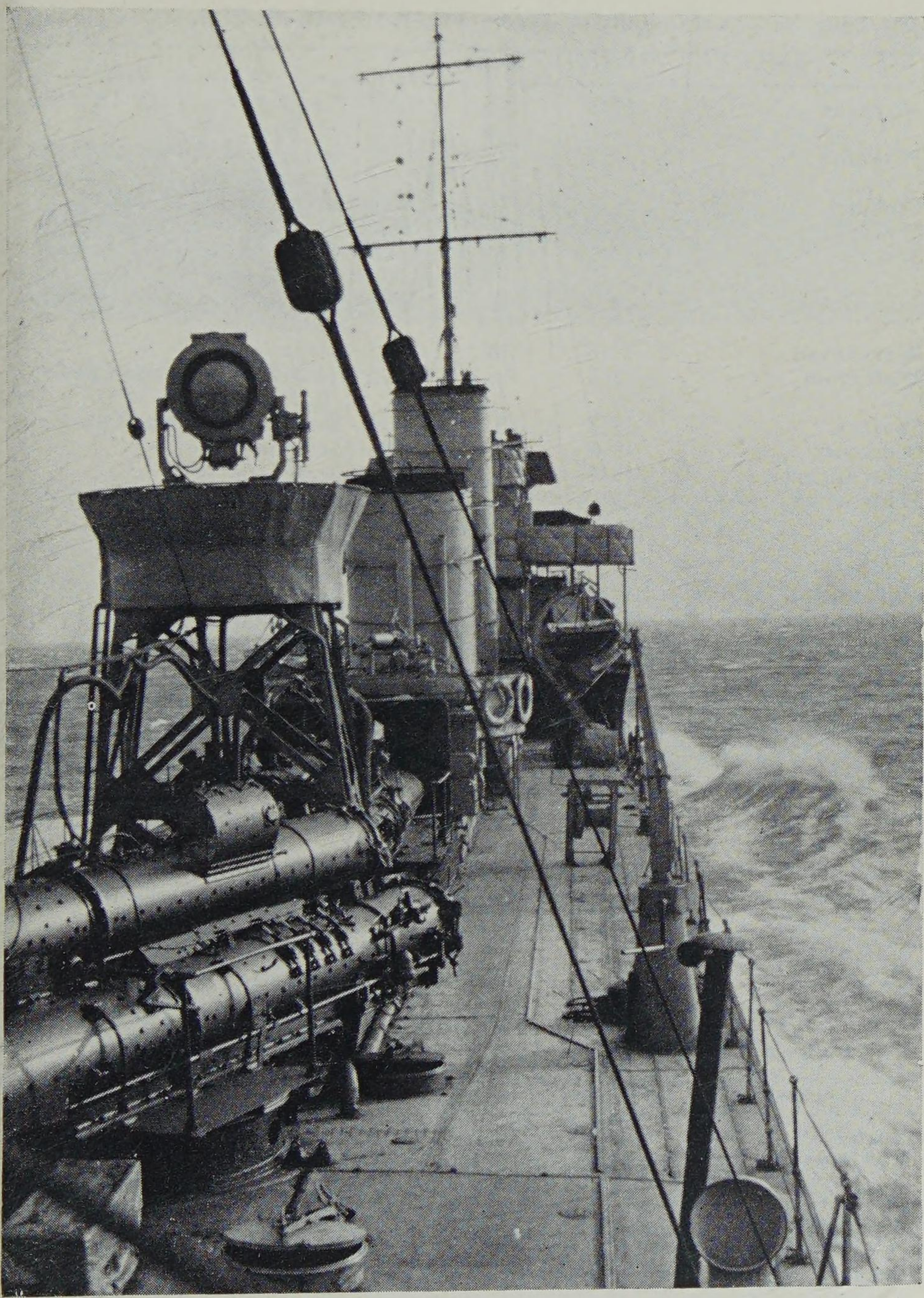
Length: 312 ft. *Beam:* 29½ ft. *Displacement:* 1,272—1,339 tons.
Geared turbines. 2 screws. 27,000 h.p. 34 knots.
V :—*Guns:* 4—4 in., 1—3 in. A.A. *Torpedo tubes:* 4 (2×2)—21 in.
Complement: 110—120.
W:—*Guns:* 3—4 in., 1—3 in. A.A. *Torpedo tubes:* 6 (2×3)—21 in.

The first five ships were Leaders during the war and for some years after. Later the 'V's' were given triple tubes and the 'W's' 4—4 in. guns and the two classes became one. From 1938 many were re-armed as Escort Vessels with A.A. guns and without Torpedo tubes.

(1) Ships built as Admiralty V type. Two funnels (Code 23h).

Name	Completed	Builder		
Valentine	1917	CL.	1940	Beached on Dutch Coast after air attack.
Valhalla	1917	CL.	1932	Scrapped.
Valkyrie	1917	Dny.	1936	Scrapped.
Valorous	1917	Dny.	1948	Scrapped.
Vampire	1917	W.	1932	R.A.N. 1942 Sunk, air attack in Bay of Bengal.
Vancouver[1]	1918	WB.	1948.	Scrapped.
Vanessa	1918	WB.	1945	Scrapped.
Vanity	1918	WB.	1948	Scrapped.
Vanoc (M.L.)	1917	C.	1945	Scrapped.
Vanquisher (M.L.)	1917	C.	1946	Scrapped.
Vectis	1917	W.	1936	Scrapped.
Vega	1917	Dx.	1948	Scrapped.
Vehement	1917	Dny.	1918	Mined in North Sea.
Velox	1918	Dx.	1946	Scrapped.
Vendetta	1917	F.	1932	To R.A.N. 1945 Discarded.
Venetia	1917	F.	1940	Mined in Thames Estuary.
Venturous (M.L.)	1917	Dny.	1936	Scrapped.
Verdun	1917	HL.	1945	Scrapped.
Versatile	1918	HL.	1946	Scrapped.
Verulam	1917	HL.	1919	Mined in Gulf of Finland.
Vesper	1918	St.	1946	Scrapped.
Vidette	1918	St.	1946	Scrapped.
Vimiera	1917	SH.	1942	Mined off the Nore.
Violent	1917	SH.	1937	Sold.
Vittoria	1918	SH.	1919	Torpedoed by Russian submarine in the Baltic.
Vivacious	1917	Y.	1946	Scrapped.
Vivien	1918	Y.	1945	Scrapped.
Vortigern	1918	W.	1942	Torpedoed, E-boat off East Coast.

[1] Renamed *Vimy* in 1928.



The deck of H.M.S. *Winchester* (' W ' Class). Note triple torpedo tubes.

[*I.W.M.*

(2) Ships built as Admiralty W Type. Two funnels (Code 23h).

Name	Completed	Builder	
Voyager	1918	St.	1932 To R.A.N. 1942 Lost off Timor.
Wakeful	1917	WB.	1940 Torpedoed, E-boat off Nieuport.
Walker	1918	Dny.	1946 Scrapped.
Walpole	1918	Dx.	1945 Scrapped.
Walrus	1918	F.	1938 Wrecked off Scarborough and scrapped.
Warwick	1918	HL.	1944 Torpedoed, U-boat off Trevose Head.
Watchman	1918	WB.	1945 Scrapped.
Waterhen	1918	Pal.	1932 To R.A.N. 1941 Bombed in E. Med.
Wessex	1918	HL.	1940 Sunk, aircraft near Calais.
Westcott	1918	Dny.	1946 Scrapped.
Westminster	1918	Sc.	1948 Scrapped.
Whirlwind	1918	SH.	1940 Torpedoed, U-boat off S.W. Ireland.
Whitley	1918	Dx.	1940 Beached on Belgian Coast after air attack.
Winchelsea	1918	W.	1945 Scrapped.
Winchester	1918	W.	1946 Scrapped.
Windsor	1918	Sc.	1948 Scrapped.
Wolfhound	1918	F.	1948 Scrapped.
Wrestler	1918	SH.	1941 Mined, and scrapped 1944.
Wryneck	1918	Pal.	1941 Sunk, enemy aircraft off Greece.

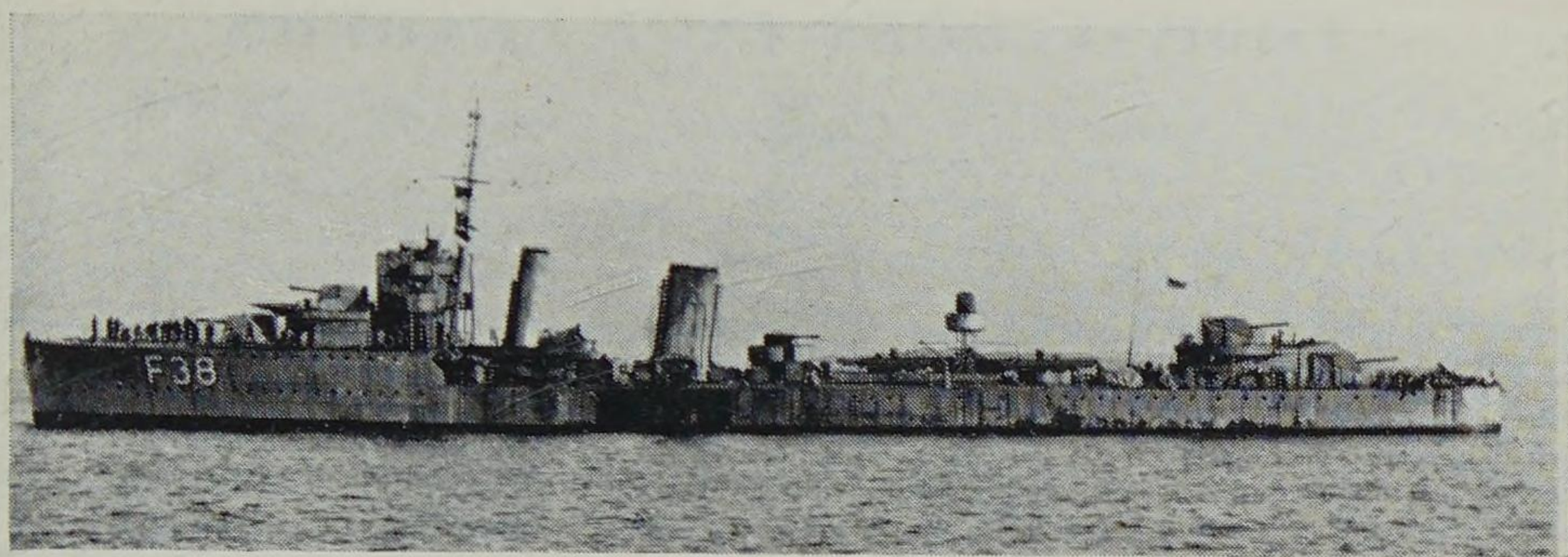
(3) Thornycroft V Type. Two funnels (Code 23h but second funnel taller and flat-sided).
As Admiralty Type but 37,000 h.p., 35—37 knots.

Name	Completed	Builder	
Viceroy	1918	T.	1946 Scrapped.
Viscount	1918	T.	1945 Scrapped.

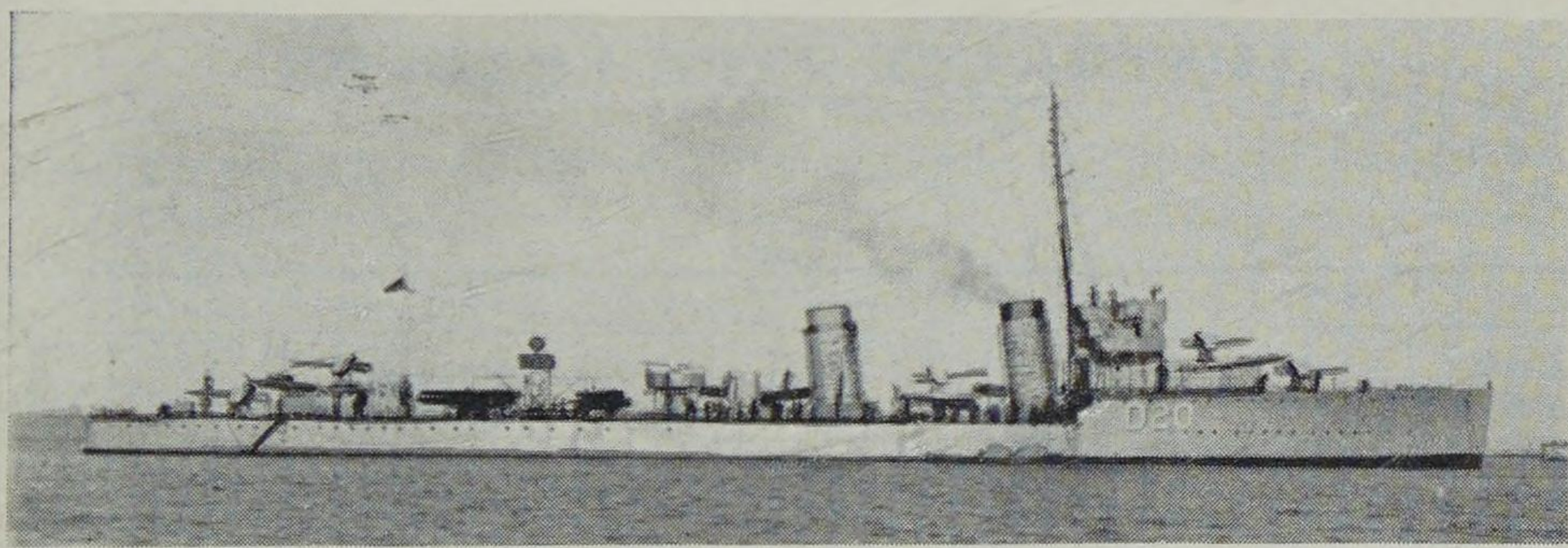
(4) Thornycroft W Type.

Name	Completed	Builder	
Wolsey	1918	T.	1948 Scrapped.
Woolston	1918	T.	1948 Scrapped.

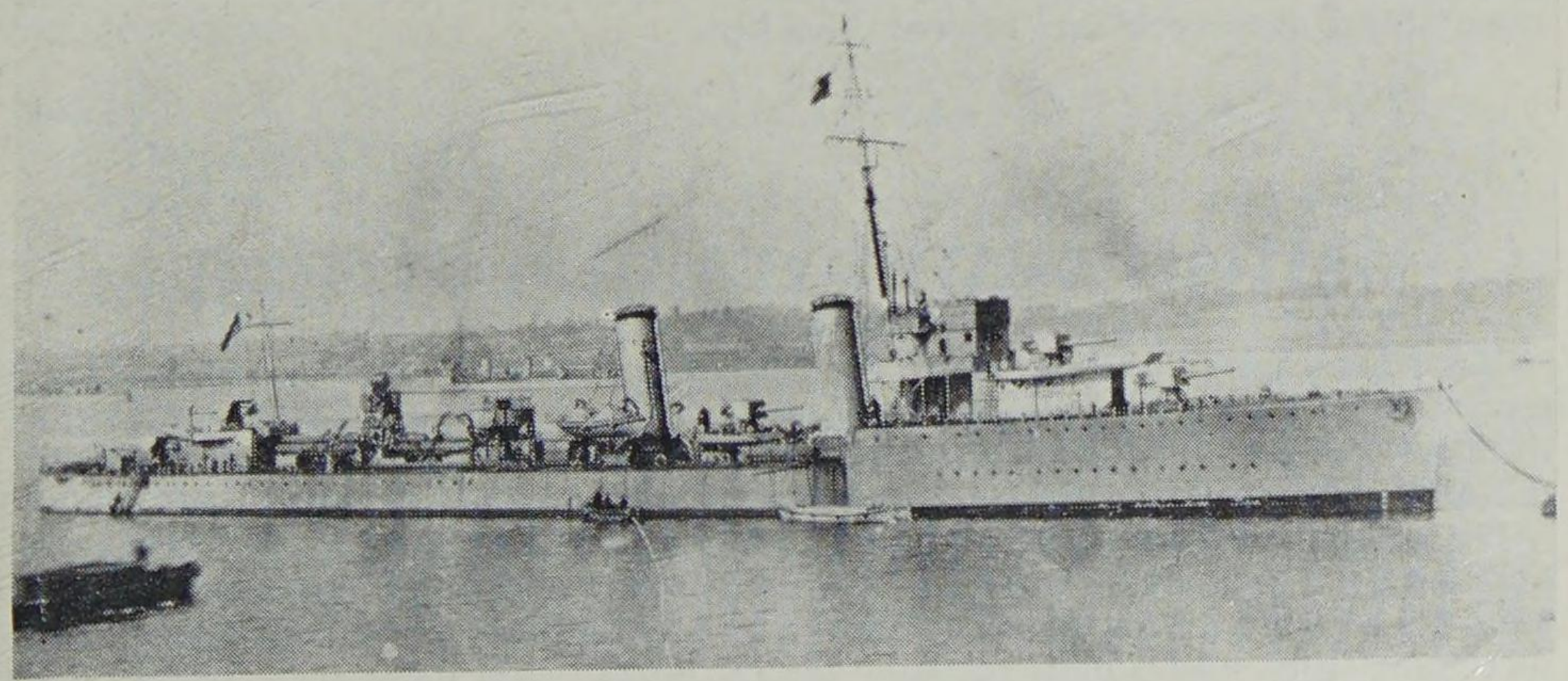
At the end of the war the Modified W class with 4.7 in. guns were under construction. Those completed were (1) *Vansittart*, *Venomous*, *Verity*, *Volunteer*, *Wanderer*, *Whitehall* and *Wren* with funnels Code 23h, (2) *Veteran*, *Whitshed*, *Wild Swan*, *Witherington*, *Wolverine*, *Worcester* and *Wyvern* with funnels Code 22h, and (3) *Wishart* and *Witch* with funnels as (2) but the first flat-sided. Sister ships: 38 cancelled.



H.M.S. *Viceroy* (Thornycroft ' V ' Class). [*N.P C.*



H.M.S. *Wallace* (Thornycroft Type Leader). [*Seward*



H.M.S. *Scott* (Admiralty Type Leader). [*N.P.C.*

THORNYCROFT TYPE LEADERS

Length: 329 ft. *Beam:* 31¾ ft. *Displacement:* 1,550—1,750 tons. Geared turbines. 2 screws. 40,000 h.p. 36—38 knots. *Guns:* 5—4.7 in., 1—3 in. A.A., 2—2 pdr. *Torpedo tubes:* 6 (2×3)—21 in. Two funnels (Code 24). *Complement:* 181.

Name	Completed	Builder	
Shakespeare	1917	T.	1936 Sold.
Spencer	1917	T.	1936 Sold.
Wallace	1919	T.	1945 Scrapped.

Sister ships: *Keppel*, completed 1925. *Rooke*, renamed *Broke*, completed 1924. *Saunders* and *Spragge* cancelled.

ADMIRALTY TYPE LEADERS

As above but length 332½ ft., displacement 1,800—2,053 tons, two funnels (Code 21).

Name	Completed	Builder	
Bruce	1918	CL.	c.1938 Discarded.
Campbell	1918	CL.	1948 Scrapped.
Douglas	1918	CL.	1945 Scrapped.
Mackay	1919	CL.	1949 Scrapped.
Malcolm	1919	CL.	1945 Scrapped.
Montrose	1918	HL.	1946 Scrapped.
Scott	1918	CL.	1918 Torpedoed, U-boat off Dutch Coast.
Stuart	1918	HL.	1932 To R.A.N. 1945 Discarded.

Sister ships: *Barrington* and *Hughes* cancelled.

BRITISH DESTROYER DEPLOYMENT

Destroyers are normally organised in flotillas and, as their individual war services would require a large volume, given below is the general disposition at the start, middle and end of the war. The woeful shortage in early months and the relegation of older ships to patrol duties will be noted.

Depot ships and attached light cruisers (see Part 2), are omitted. Leaders are named (names in parenthesis excepted) and supporting craft are abbreviated:—t.b. (torpedo boat), p. (P-boat), p.c. (PC-Boat—P-boat disguised as a merchant ship) and c.m.b. (coastal motor boat). All these will be found in Part 4. Two further abbreviations for destroyer classes are ' T ' for Talisman class and ' U ' for Admiralty Modified R class.

1914 (September)

1st Flotilla (Harwich)	20 ' I ' class.
2nd Flotilla (Grand Fleet)	Broke to join. 20 ' H ' class.
3rd Flotilla (Harwich)	16 ' L ' class.
4th Flotilla (Grand Fleet)	Swift. Faulknor to join. 20 ' K ' class.
5th Flotilla (Mediterranean)	16 ' G ' class (+6 t.b.).
6th Flotilla (Dover Patrol)	10 ' F ' class, 12 ' B ', ' C ' classes.
7th Flotilla (Humber Patrol)	22 ' A '. ' B ', ' C ', ' D ' classes (+12 t.b.).
8th Flotilla (Tyne Patrol)	12 ' B ', ' C ' classes (+12 t.b.).
9th Flotilla (Forth Patrol)	17 ' E ' class.
Shetland Patrol	4 ' C ' class.
Attached to Channel Fleet	8 ' E ' class.
China Station	7 ' E ' class, 1 ' D ' class.
Australian Fleet	3 ' I ' (R.A.N.) class.
Gibraltar	(10 t.b.).
Attached Submarines (Harwich)	2 ' I ' class.

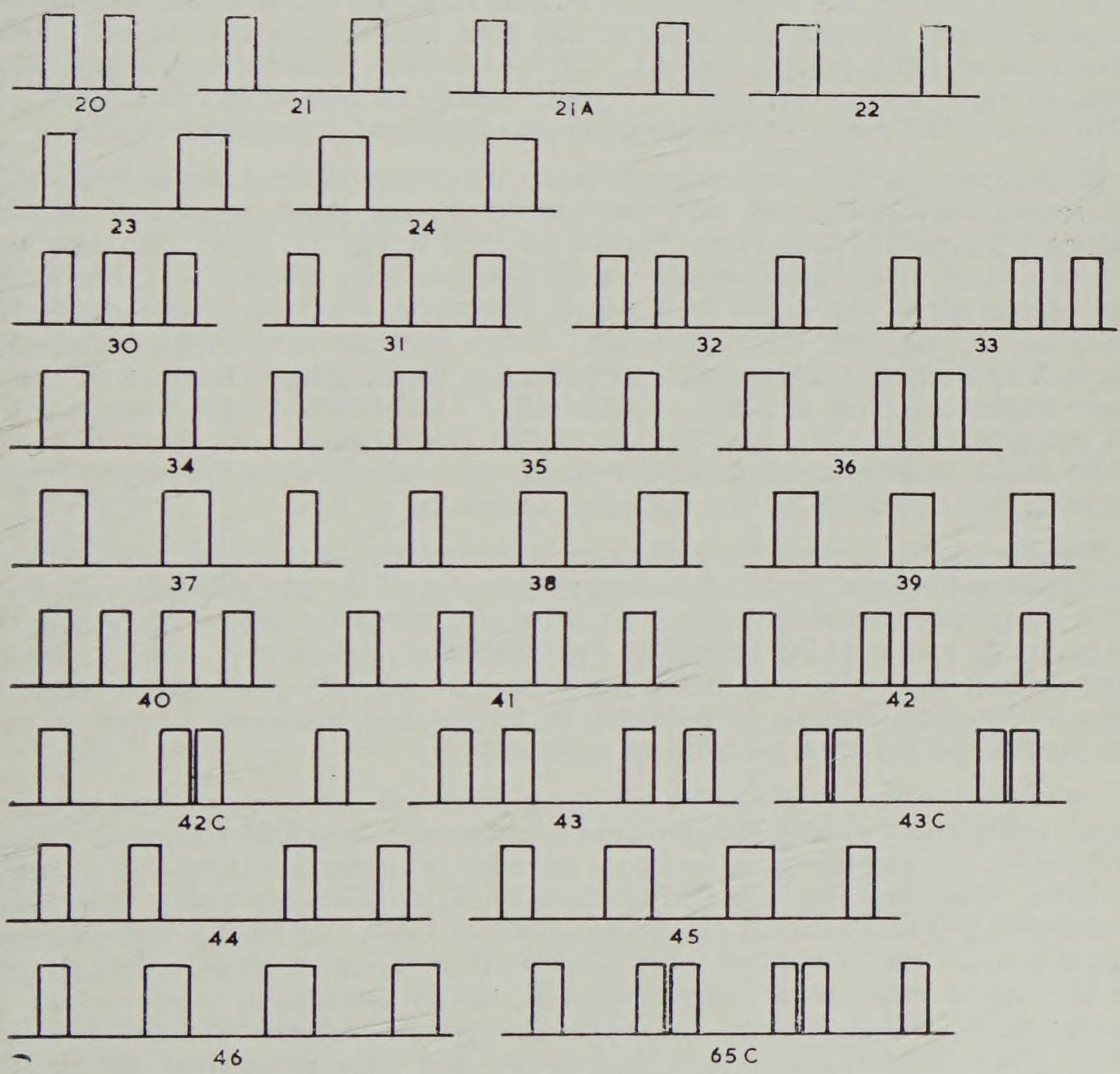
1916 (May—before Jutland)

Attached to flagship (H.M.S. Iron Duke)	Abdiel (Oak).
1st Flotilla (Rosyth)	Botha. 20 ' I ' class.
2nd Flotilla (temporarily at Plymouth)	10 ' H ' class.
4th Flotilla (Scapa)	Tipperary, Broke, 19 ' K ' class.
6th Flotilla (Dover)	Swift, 9 ' F ' class, 1 ' E ' class, 12 ' B ', ' C ', ' D ' classes (+3 t.b., 4 p.).
7th Flotilla (Humber)	12 ' E ' class, 8 ' B ', ' C ', ' D ' classes.
8th Flotilla (Forth)	7 ' B ', ' C ', ' D ' classes (+10 t.b.).
9th Flotilla (Harwich)	Lightfoot, 21 ' L ' class.
10th Flotilla (Harwich and Dover)	Nimrod, 2 ' T ' class, 15 ' M ' class.
11th Flotilla (Cromarty)	Kempenfelt, 16 ' M ' class.
12th Flotilla (Scapa)	Faulknor, Marksman, 16 ' M ' class.
13th Flotilla (Rosyth)	11 ' M ' class (+ 5 to join).
14th Flotilla (Scapa)	Being formed of new ' M ' class.
Mediterranean	12 ' G ' class, 2 ' H ' class, 6 ' E ' class (+7 t.b.).
Malta	3 ' G ' class, 5 ' H ' class, 3 ' E ' class.
Local Defence Flotillas	
The Nore	9 ' A ', ' B ', ' C ', ' D ' classes (+16 t.b. 3 p.).
Portsmouth	10 ' E ' class, 9 ' A ', ' B ', ' C ', ' D ' classes (+21 t.b.).
Devonport	2 ' E ' class, 4 ' A ', ' B ', ' C ', ' D classes (+8 t.b.).
Newhaven (4 t.b.), Portland (5 t.b.), Pembroke (4 t.b.), Queenstown (4 t.b.).	
North Channel Patrol (Larne)	2 ' E ' class, 2 ' B ', ' C ' or ' D ' class.
Tenders to H.M.S. Leander (Scapa)	10 ' B ' ' C ', ' D ' classes.,
Tenders to H.M.S. Tyne (Cromarty)	5 ' B ', ' C ', ' D ' classes.
Australian Fleet	4 ' I ' (R.A.N.) class.
Hong Kong	3 ' B ', ' C ', ' D ' classes.
Cape of Good Hope	(2 t.b.).

1918 (October)

Attached to flagship (H.M.S. Queen Elizabeth). (Oak).	
1st Flotilla (Portsmouth)	9 ' E ' class (+31 p.).
2nd Flotilla (N. Ireland)	20 ' M ' class, 5 ' G ' class.
3rd Flotilla (Grand Fleet)	Nimrod, Talisman, 11 ' M ' class.
4th Flotilla (Devonport)	9 ' M ' and ' R ' classes, 2 ' K ' class, 2 U.S. destroyers.
5th Flotilla (Mediterranean)	3 ' S ', 2 ' M ', 14 ' I ', 6 ' I ' (R.A.N.), 14 ' H ', 1 ' G ' and 8 ' E ' class.
Gibraltar	1 ' I ' class, 1 ' H ' class (+9 t.b.).
Aegean (4 t.b.). Adriatic (4 t.b.)).	
6th Flotilla (Dover)	Douglas, Whirlwind, Velox, Botha, Swift, 2 ' S ' class, 2 ' T ' class, 14 ' M ' class, 5 ' F ' class, 6 ' B ', ' C ' classes (+2 t.b., 10 p., c.m.b.).
Attached submarine flotillas	1 ' M ' class, 2 ' I ' class.
7th Flotilla (Immingham)	14 'E' class, 14 'A', 'B', C", 'D' classes (+6 t.b.).
8th Flotilla (Firth of Forth)	(10 t.b.).
10th Flotilla (Harwich)	Spencer, Shakespeare, Bruce, Montrose, 24 'R' class.
11th Flotilla (Grand Fleet)	Seymour, Valorous, Kempenfelt, 12 'VW' class, 5 'R' class.
12th Flotilla (Grand Fleet)	Saumarez, Valhalla, 5 'VW' class, 13 'S' class.
13th Flotilla (Grand Fleet)	Valentine, Valkyrie, 20 'VW' class, 7 'U' class, 1 'M' class.
14th Flotilla (Grand Fleet)	Vampire, Anzac, 2 'S' class, 23 'M' class.
15th Flotilla (Grand Fleet)	Parker, Grenville, 4 'U' class, 1 'R' class. 13 'M' class.
20th Flotilla (Immingham-Minelayers)	Abdiel, Gabriel, 3 'V' class, 2 'R' class, 1 'L' class, 2 'I' class.
Northern Patrol (Kirkwall).	Marksman.
Southern Patrol (Falmouth)	Lightfoot (+1 t.b.).
North Channel Patrol (Larne)	4 ' A ', ' B ', ' C ' or ' D ' class.
Irish Sea Hunting Flotilla	11 ' A ', ' B ', ' C ' or ' D ' class.
Portsmouth	5 'A', 'B', 'C' or 'D' class (+19 t.b., 6 c.m.b.).
Attached to Vernon	1 'M', 1 'K' and 1 'C' class (+ 1 t.b.).
Devonport	3 ' A ', ' B ', ' C ' or ' D ' class (+8 t.b.).
The Nore	6 'A', 'B', 'C' or 'D' class (+13 t.b.).
Portland	(5 t.b., 6 c.m.b.).
Methil Convoy Flotilla	6 ' L ' class.
Pembroke (3 t. b., 19 p.c.). Newhaven (5 t.b.). Queenstown (4 t.b.).	
China Station	1 'B', 1 'C' and 1 'D' class (+4 t.b.).
Cape of Good Hope	(2 t.b.).

BRITISH FUNNEL CODE



h - fore funnel heightened m - mast between 1st and 2nd. funnels

GERMAN DESTROYER DEVELOPMENT
1898 – 1920

If destroyers are regarded as greatly enlarged torpedo boats, then Germany evolved such ships earlier than Britain. In 1887 they had introduced " Divisional Boats " as leaders for torpedo boat flotillas. Twice the size of contemporary torpedo boats, D1 and D2 were of 230 tons and comparable to our earliest destroyers of 1893, except in speed. D3 to D9 were progressively larger, whilst D10, of 1898, was of Thornycroft build, similar to our A and D classes. By 1914 these " D " boats had been reduced to minor or experimental roles.

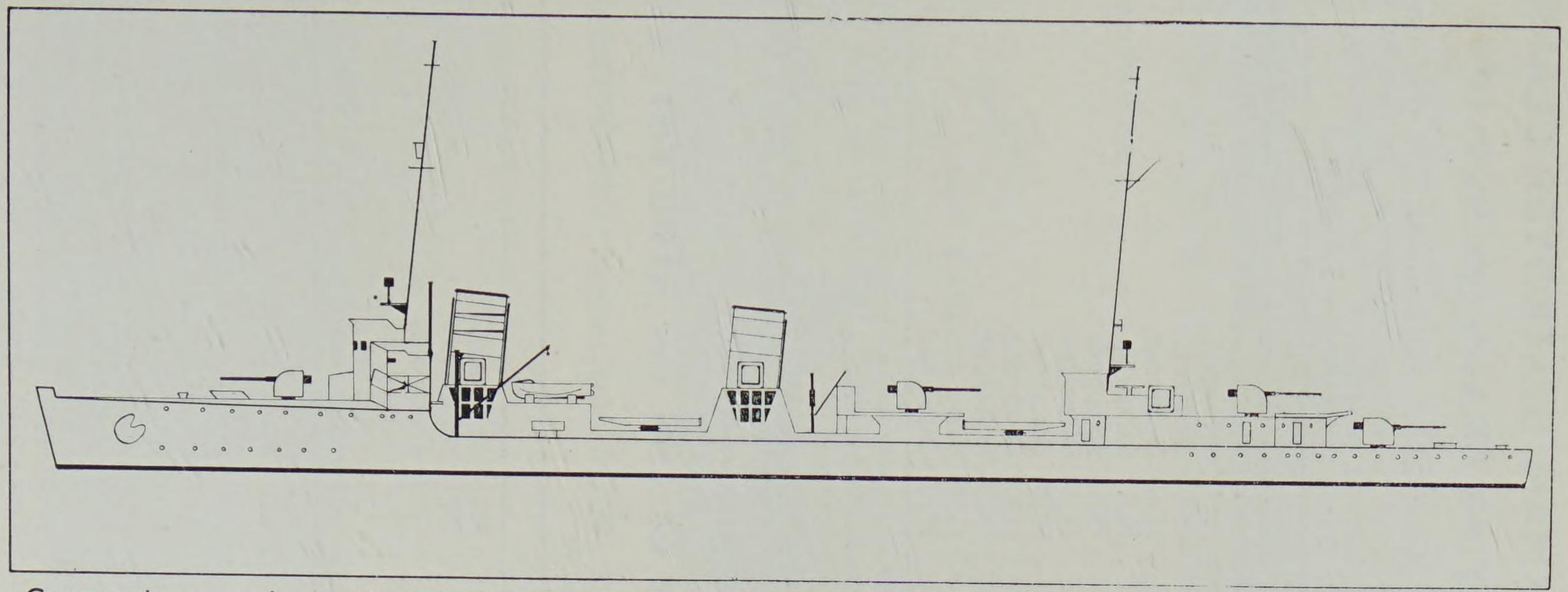
In Germany the link with torpedo boats was much closer than in Britain, for destroyers were numbered, and not named, in the same series and officially termed " Large Torpedo Boats ", S90 of 1899 being the first. Strongly constructed to work in heavy weather, their features were distinctive. The bridge was placed aft of the break in the high forecastle, allowing heavy seas to fall away before reaching the charthouse. Extra torpedo tubes were mounted in the well so formed, enabling their torpedoes to be discharged forward at a more acute angle than from the tubes further aft. Two widely-spaced funnels with a tall mainmast were also characteristic of this general plan. As there were over thirty of the two-funnelled destroyer classes their identification has been further facilitated in this book by the diagrams shown on p. 205.

Broadly speaking, there were three variations, with:—(a) a long break between forecastle and bridge, to which arrangement most of the earlier ships were built; (b) a short break, in most cases with a forward torpedo tube on each side, and (c) no break and with the bridge on the forecastle, as in British ships. The last arrangement gained favour in the latter part of the war, after which the older ships left to the Germans were altered by having their forecastles extended over the breaks, the forward tubes being removed.

Uniformity was also aided by confining destroyer building to three principal yards:—Schichau, Elbing (S), Krupp's Germania Yard, Kiel (G), and Vulkan, Stettin (V), the identifying letter being included with the ship's number. Blohm & Voss, Hamburg (B), and Howaldt, Kiel (H), built only a few later ships. Starting at S90 the numbers ran up to G197, of 1911. In 1912 a new series was begun with V1 and continued (with S, G, V, B or H) up to H147, although some of the series were never completed. To avoid confusion, survivors of the earlier series were re-lettered T90-T197, between November 1910 and February 1918. New *torpedo boats* built during the war were designated A1 to A95, with the exception of the rather larger V105-V108 included in the later destroyer series.

The new serial numbers did not mark any particular break in destroyer development but generally speaking the new ships had funnels closer together without tubes mounted between them. Numbers B97 to V118 were confined to less orthodox classes, some of them having been on order for foreign powers. Most interesting of these were the 2,400-ton Leaders S113 and V116. As designed, they were the largest and most powerful destroyers in the world, but did not come up to specification on trials. They were top heavy, rolled badly and could not reach contract speed by a wide margin.

After 1916 priority was given to U-boat construction and the destroyer programme was almost abandoned, only 22 being completed in the next two years, instead of three per month.



German destroyer leader V116 2,400 tons. The largest destroyer built during World War I.

GERMAN DESTROYER CLASSES

T 90 CLASS (ex S90-101)

Length: 206¾ ft. *Beam:* 23 ft. *Displacement:* 310—394 tons.
Triple expansion (3-cyl.). 2 screws. 5,900 h.p. 26.5 knots.
Guns: 3—4 pdr. *Torpedo tubes:* 3—17.7 in. *Complement:* 49—60.
Two funnels (Code 21a). T. tubes (plan 1 or 2).

Number	Completed		
T90	1899	1914	Wrecked on China coast.
T91	1900	1921	Scrapped.
T92	1900	1920	Discarded.
T93	1900	1920	Discarded.
T94	1900	1921	Scrapped.
T95	1900	1921	Scrapped.
T96	1900	1920	Discarded.
T97	1900	1920	Discarded.
T98	1900	1920	Discarded.
T99	1900	1920	Discarded.
T100	1901	1918	Sunk, collision in Baltic.
T101	1901	1920	Discarded.

Before the war S97 (T97) was named *Sleipner*, painted white and acted as escort to the Imperial Yacht *Hohenzollern*. 1915-17 the class was relegated to escort duties.

S.M.S. *Taku*, similar to the British ship described on p. 142 was scutted at Tsingtao.

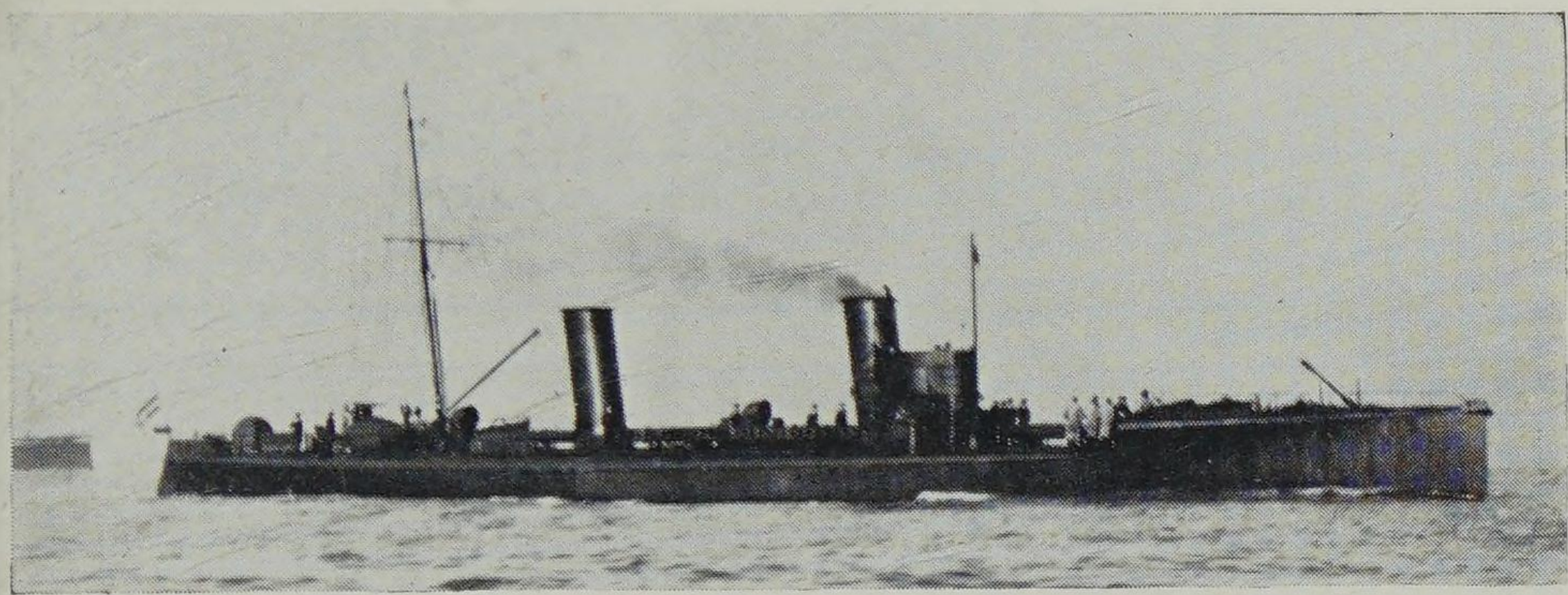
T 102 CLASS (ex S102-107, 114-119)

As T90 but *length:* 207½ ft., *displacement:* 315—406 tons, *speed:* 27.5 knots and T. tubes (plan 1).

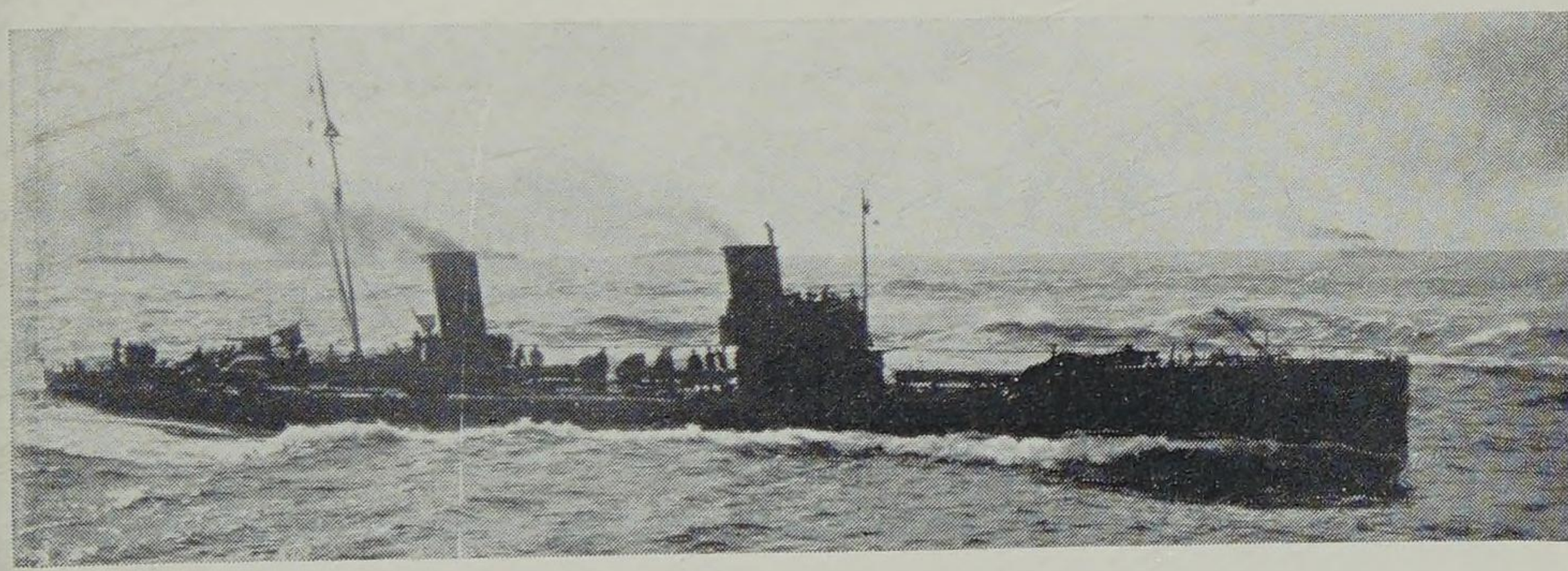
Number	Completed		
T102	1901	1921	Scrapped.
T103	1901	1921	Scrapped.
T104	1901	1920	Discarded.
T105	1901	1921	Scrapped.
T106	1901	1920	Discarded.
T107	1902	1920	Discarded.

As T102 but 6,500 h.p., 28.5 knots.

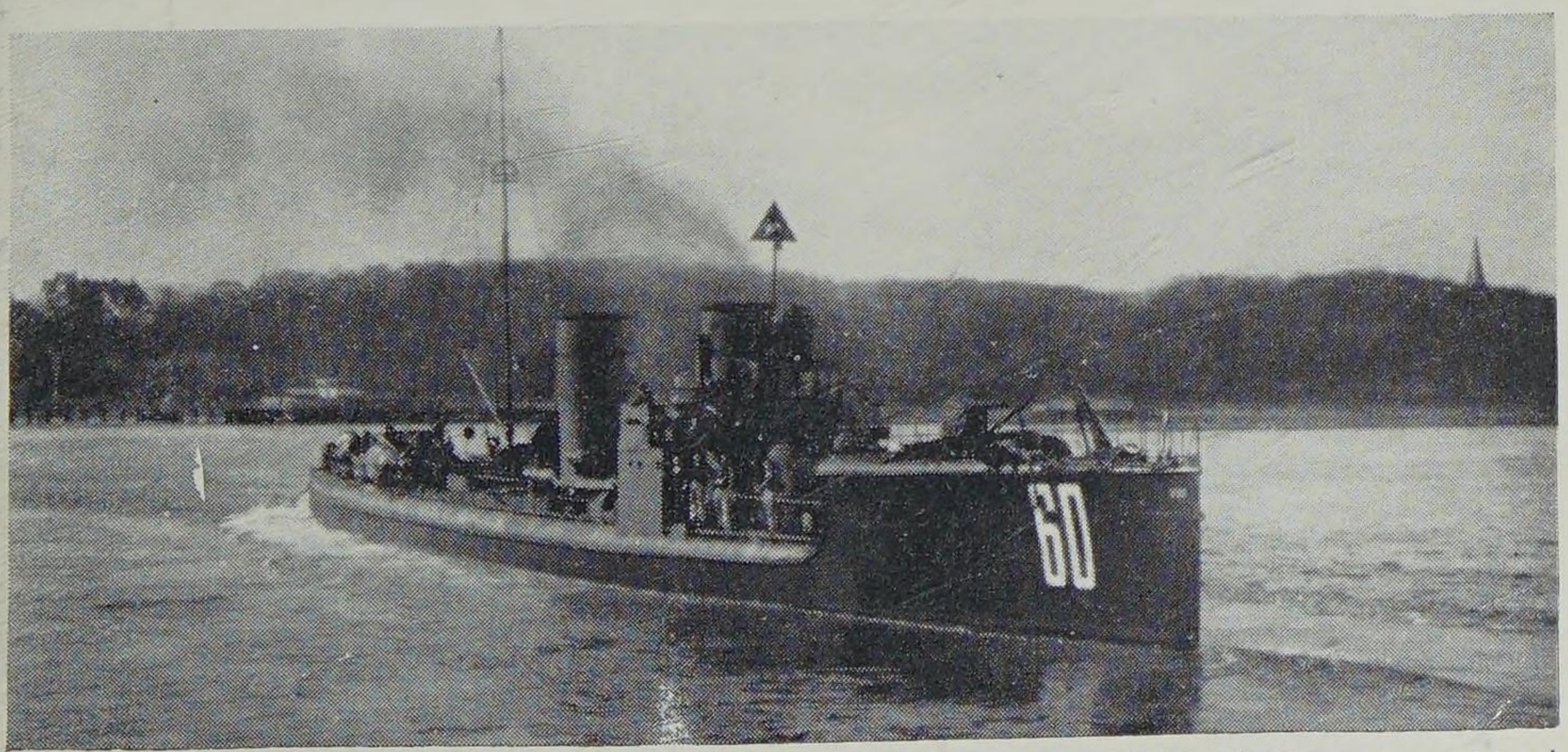
Number	Completed		
T114	1902	1921	Scrapped.
T115	1903	1914	Sunk, gunfire at Heligoland Bight.
T116	1903	1914	Torpedoed, submarine E9 off mouth of Ems.
T117	1903	1914	Sunk, gunfire at Heligoland Bight.
T118	1903	1914	Sunk, gunfire at Heligoland Bight.
T119	1903	1914	Sunk, gunfire at Heligoland Bight.



German T 90 Class destroyer. [I.W.M.



German T 102 Class destroyer. [N.M.M. Greenwich



German destroyer T 160. For a time the first figure on T110-T197 was omitted on forecastle.

T 108 CLASS (ex G108-113)

Length: 216 ft. *Beam:* 22 ft. *Displacement:* 330—440 tons.
Triple expansion (3-cyl.). 2 screws. 6,000—6,600 h.p. 29 knots.
Guns: 3—4 pdr. *Torpedo tubes:* 3—17.7 in. *Complement:* 49—60.
Two funnels (Code 21a). T. tubes (plan 1).

Number	Completed		
T108	1902	1921	Scrapped.
T109	1902	1920	Discarded.
T110	1903	1921	Scrapped.
T111	1902	1921	Scrapped.
T112	1902	1920	Discarded.
T113	1902	1921	Scrapped.

T 120 CLASS (ex S120-131)

Length: 212⅓ ft. *Beam:* 23 ft. *Displacement:* 391—468 tons.
Triple expansion (3 cyl.). 2 screws. 6,400 h.p. 28 knots.
(T.125: Turbines. 3 screws. 29.5 knots)
Guns: 3—4 pdr. *Torpedo tubes:* 3—17.7 in. *Complement:* 49—60.
Two funnels (Code 21a). T. tubes (plan 1a).

Number	Completed		
T120	1904	1921	Scrapped.
T121	1904	1920	Discarded.
T122	1904	1918	Mined off Heligoland.
T123	1904	1916	Mined in North Sea.
T124	1904	1914	Sunk, collision in the Baltic.
T125	1905	1921	Scrapped.

As above but 371—482 tons, 4—4 pdr. guns.

Number	Completed		
T126	1905	1921	Scrapped.
T127	1905	1920	Discarded.
T128	1905	1920	Discarded.
T129	1905	1915	Ran aground at mouth of the Elbe.
T130	1905	1920	Discarded.
T131	1905	1920	Discarded.

T 132 CLASS (ex G132-136)

Length: 215½ ft. *Beam:* 23 ft. *Displacement:* 412—544 tons.
Triple expansion (3 cyl.). 2 screws. 7,000 h.p. 28.5 knots.
Guns: 4—4 pdr. (T135 1—3.5 in., 2—4 pdr.). *Torpedo tubes:* 3—17.7 in.
Complement: 68.
Two funnels (Code 21a). T. tubes (plan 1a).

Number	Completed		
T132	1906	1920	Discarded.
T133	1906	1920	Discarded
T134	1907	1921	Scrapped.
T135	1907	1921	Scrapped.
T136	1908	1921	Scrapped.

T 137 (ex G137)

Length: 234½ ft. *Beam:* 25 ft. *Displacement:* 580—693 tons.
Turbines. 3 screws. 10,800 h.p. 33.9 knots.
Guns: 1—3.5 in., 3—4 pdr. *Torpedo tubes:* 3—17.7 in. *Complement:* 63—80.
Two funnels (Code 21a). T. tubes (plan 3).

Number	Completed		
T137	1907	1920	Discarded.

T 138 CLASS (ex S138-149)

Length: 232 ft. *Beam:* 25½ ft. *Displacement:* 533—684 tons.
Triple expansion (3-cyl.). 2 screws. 11,000 h.p. 30 knots.
Guns: 1—3.5 in., 3—4 pdr. *Torpedo tubes:* 3—17.7 in. *Complement:* 72-80
Two funnels (Code 21a). T. tubes (plan 2).

Number	Completed		
T138	1907	1918	Mined in North Sea.
T139	1907	1927	Became Target Control ship *Pfeil*.
T140	1907	1920	Discarded.
T141	1907	1927	Became TargetControl ship *Blitz* (1). 1933 scrapped.
T142	1907	1920	Discarded.
T143	1907	1927	Discarded, 1930 scrapped.
T144	1907	1929	Scrapped.
T145	1907	1920	Discarded.
T146	1907	1928	Discarded.
T147	1908	1921	Scrapped.
T148	1908	1928	Discarded, 1935 scrapped.
T149	1908	1927	Scrapped.

T 150 CLASS (ex V150-161)

Length: 237¾ ft. *Beam:* 25½ ft. *Displacement:* 558—691 tons.
Triple expansion (3-cyl.). 2 screws. 10,900 h.p. 30 knots.
Guns: 2—3.5 in. *Torpedo tubes:* 3—17.7 in. *Complement:* 73—93.
Two funnels (Code 21a). T. tubes (plan 1 with gun on forecastle).

Number	Completed	
T150	1907	1915 Sunk, collision near Heligoland.
T151	1908	1934 Became Target control ship *Komet*.
T152	1908	1931 Discarded, 1935 scrapped.
T153	1908	1934 Became Training Vessel *Edouard Jungmann*.
T154	1908	1928 Discarded, 1935 scrapped.
T155	1908	1925-8 Rebuilt, 1945 scuttled.
T156	1908	1934 Became submarine tender, 1945 scuttled.
T157	1908	1934 Became submarine tender, 1945 scuttled.
T158	1908	1934 Became submarine tender, 1945 to U.S.S.R.
T159	1908	1920 To U.K. and scrapped 1922.
T160	1908	1920 To U.K. and scrapped 1922.

As above but 596—687 tons, turbines, 14,800 h.p., 33 knots.

Number	Completed	
T161	1908	1920 To U.K. and scrapped 1922.

T 162 CLASS (ex V162-164)

Length: 242½ ft. *Beam:* 25¾ ft. *Displacement:* 639—739 tons.
Turbines. 2 screws. 15,000—16,000 h.p. 33.5 knots.
Guns: 2—3.5 in. *Torpedo tubes:* 3—17.7 in. *Complement:* 73—93.
Two funnels (Code 21a). T. tubes (plan 4).

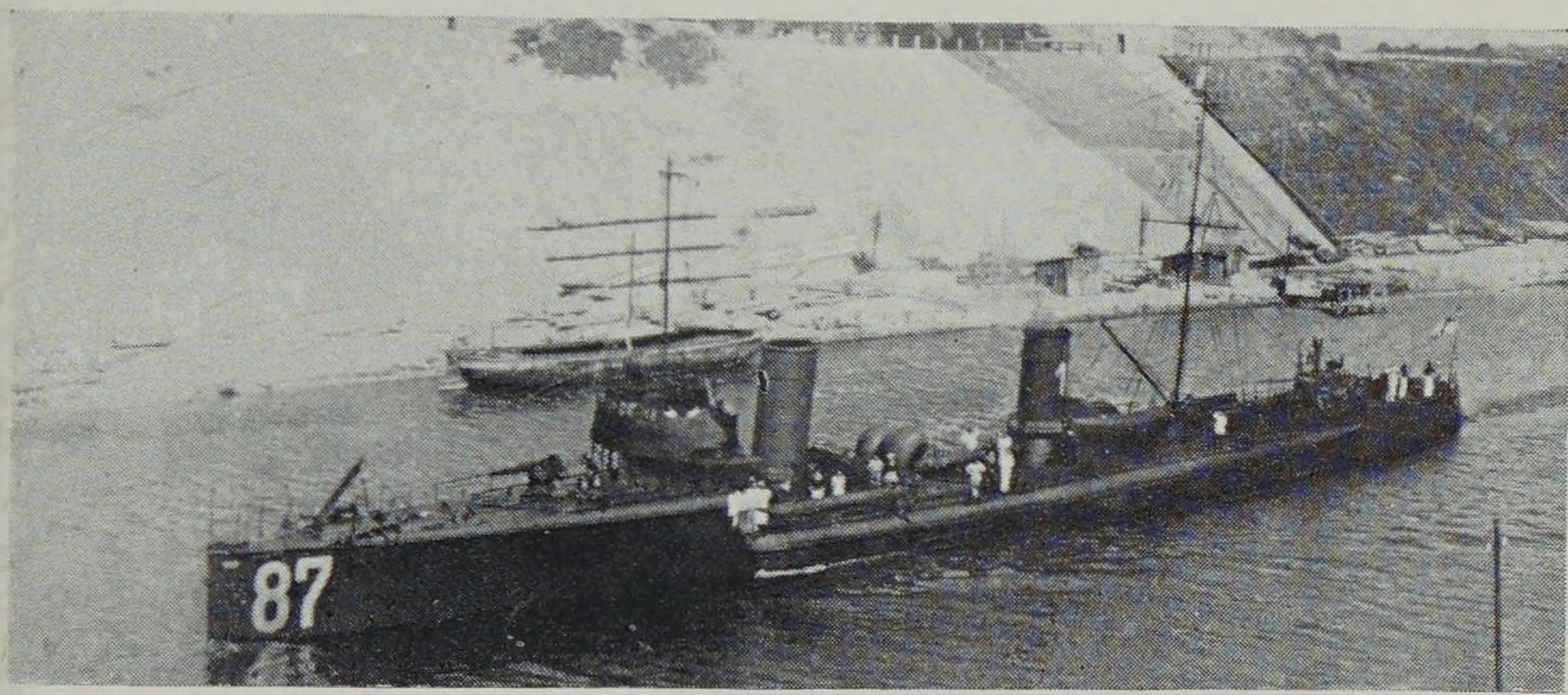
Number	Completed	
T162	1909	1916 Mined in the Baltic.
T163	1909	1921 Scrapped.
T164	1909	1920 To U.K. and scrapped 1922.

T 165 CLASS (ex S165-168)

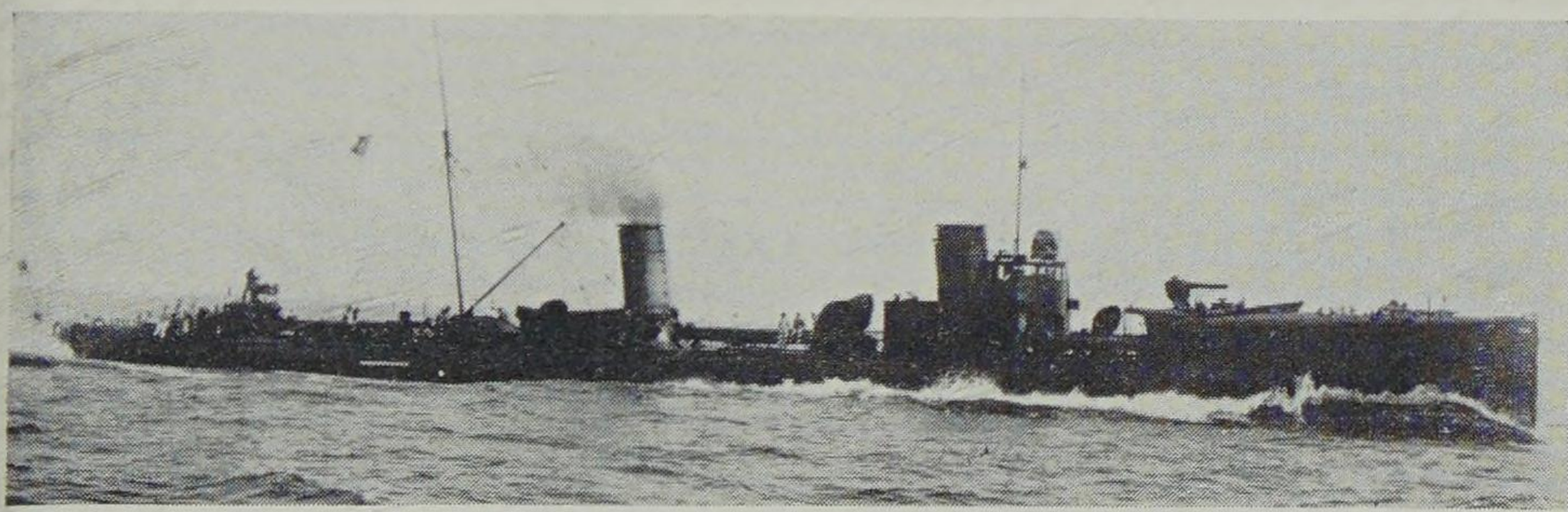
Length: 243¼ ft. *Beam:* 26 ft. *Displacement:* 665—765 tons.
Otherwise as T162 but 17,500 h.p. and third T. tube further aft.

Number	Completed	
T165	1911	1920 To U.K. and scrapped 1922.
T166	1911	1920 To U.K. but scrapped 1922 in Holland.
T167	1911	1921 Scrapped.
T168	1911	1927 Scrapped.

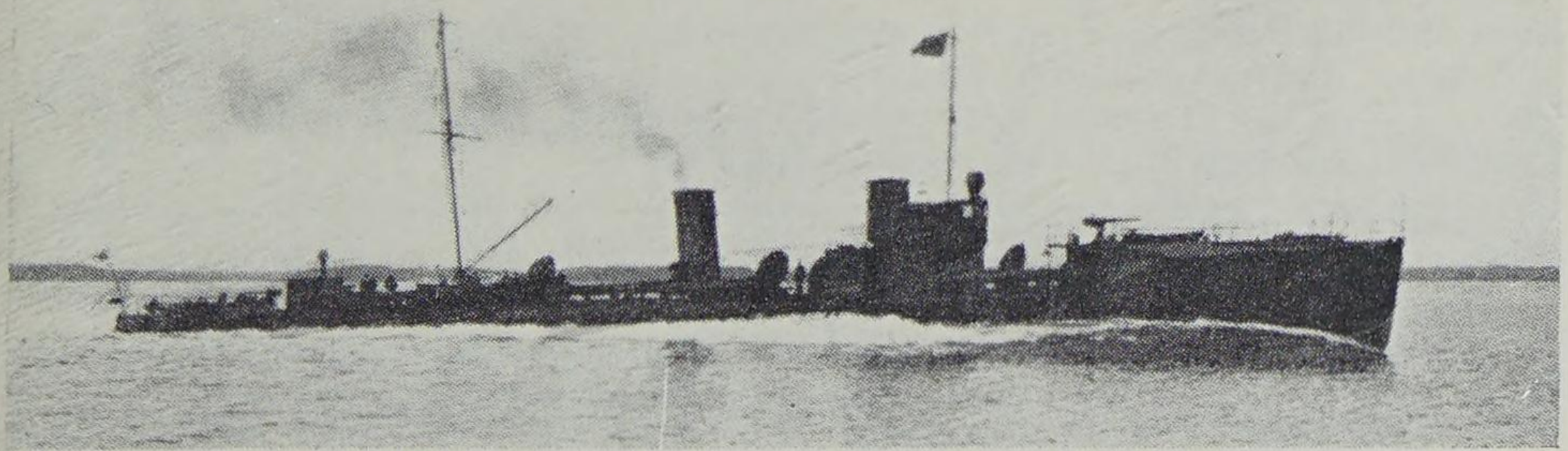
The previous S165-8 of 1909 were sold to Turkey in 1910.



German destroyer T 187 with long forecastle. [N.M.M. Greenwich



German destroyer T 188. [N.M.M. Greenwich



German destroyer G7.

T 169 CLASS (ex G169-173)

Length: 242¾ ft. *Beam:* 26 ft. *Displacement:* 670—777 tons.
Turbines. 3 screws. 15,000—16,600 h.p. 32.7 knots.
Guns: 2—3.5 in. *Torpedo tubes:* 3—17.7 in. *Complement:* 73—93.
Two funnels (Code 21a). T. tubes (plan 4 with first tube further aft).

Number	Completed		
T169	1909	1920	To U.K. and scrapped.
T170	1909	1921	Scrapped.
T171	1910	1912	Sunk, collision in North Sea.
T172	1910	1918	Mined in North Sea.

As above but 700—778 tons, Zoelly turbines, 31.4 knots.

Number	Completed		
T173	1910	1920	To U.K. and scrapped 1922.

T 174 CLASS (ex G174-175)

Length: 242¾ ft. *Beam:* 26 ft. *Displacement:* 700—824 tons.
Turbines. 2 screws. 15,000—16,000 h.p. 32 knots.
Guns: 2—3.5 in. *Torpedo tubes:* 4—19.7 in. *Complement:* 73—93.
Two funnels (Code 21a). T. tubes (plan 45).

Number	Completed		
T174	1910	1920	To U.K. and scrapped.
T175	1910	1926	Scrapped.

T 176 CLASS (ex S176-179)

Length: 243¼ ft. *Beam:* 26 ft. *Displacement:* 656—781 tons.
Turbines. 2 screws. 17,750 h.p. 33 knots.
Guns: 2—3.5 in. *Torpedo tubes:* 4—19.7 in. *Complement:* 73—93.
Two funnels (Code 21a). T. tubes (plan 6).

Number	Completed		
T176	1910	1920	To U.K. and scrapped.
T177	1911	1915	Mined in the Baltic.
T178	1910	1913	Sunk, collision in North Sea.
T179	1911	1921	Scrapped.

T 180 CLASS (ex V180-185)

Length: 242½ ft. *Beam:* 25¾ ft. *Displacement:* 650—783 tons.
Otherwise as T176.

Number	Completed		
T180	1910	1921	Scrapped in Holland.
T181	1910	1922	Scrapped in Holland.
T182	1910	1920	To U.K. and scrapped.
T183	1910	1920	To U.K. and scrapped.
T184	1910	1920	To U.K. and scrapped.
T185	1910	1932	Became Target Control ship *Blitz* (2).

T 186 CLASS (ex V186-191)

As T180 but 18,000 h.p., 35.3 knots and T. tubes to plan 7.
T187 had long forecastle without well (to plan F7).

Number	Completed		
T186	1910	1920	To U.K. and scrapped.
T187	1911	1914	Sunk, gunfire at Heligoland Bight.
T188	1911	1915	Torpedoed by submarine E15 in North Sea.
T189	1911	1920	To U.K. and wrecked on the South Coast.
T190	1911	1928	Rebuilt, 1937 became experimental tender *Claus Van Bevern*.
T191	1911	1915	Torpedoed* by submarine E9 in the Baltic.

* German sources say mined.

T 192 CLASS (ex G192-197)

Length: 242¾ ft. *Beam:* 26 ft. *Displacement:* 660—810 tons.
18,000—19,000 h.p. 34 knots. Otherwise as T186.

Number	Completed		
T192	1911	1920	To U.K. and scrapped 1922.
T193	1911	1920	To U.K. and scrapped.
T194	1911	1916	Rammed and sunk by H.M.S. *Cleopatra* in North Sea.
T195	1911	1920	To U.K. and scrapped.
T196	1911	1928	Rebuilt, 1945 to U.S.S.R.
T197	1911	1920	To U.K. and scrapped 1921.

The above 108 ships were re-lettered in the 'T' series between Nov. 1910 and Feb. 1918 when ships of the new series, listed below, were projected.

V1 CLASS (V1-6)

Length: 235¼ ft. *Beam:* 25 ft. *Displacement:* 569—697 tons.
Turbines. 2 screws. 17,000 h.p. 33 knots.
Guns: 2—3.5 in. *Torpedo tubes:* 4—19.7 in. *Mines:* 18. *Complement:* 73—93.
Two funnels (Code 21). T. tubes (plan 8).

Number	Completed		
V1	1912	1929	Discarded.
V2	1912	1930	Scrapped.
V3	1912	1929	Discarded.
V4	1912	1916	Sunk at Jutland.
V5	1913	1929	Discarded.
V6*	1913	1929	Discarded.

* V6 had long forecastle without well (plan F8). The original V5 and V6 of 1912 were sold to Greece.

G7 CLASS (G7-12)

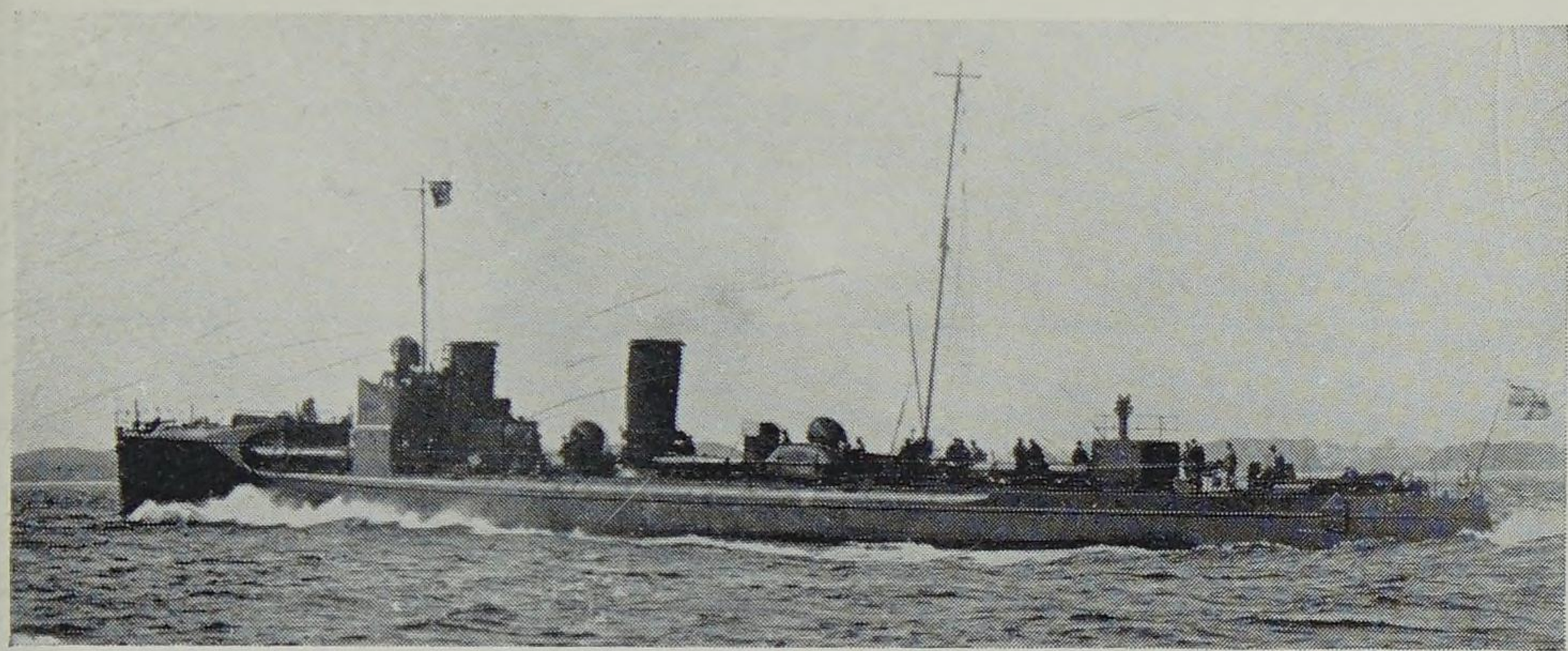
Length: 234½ ft. *Beam:* 24¾ ft. *Displacement:* 573—719 tons.
Otherwise as V1.

Number	Completed		
G7	1912	1928-31	Rebuilt, 1936 Training ship.
G8	1912	1928-31	Rebuilt, 1936 Training ship.
G9	1912	1918	Mined in North Sea.
G10	1912	1928-31	Rebuilt, 1936 Training Ship.
G11	1912	1928-31	Rebuilt, 1936 Training Ship.
G12	1912	1915	Sunk, collision in North Sea causing torpedo to explode.

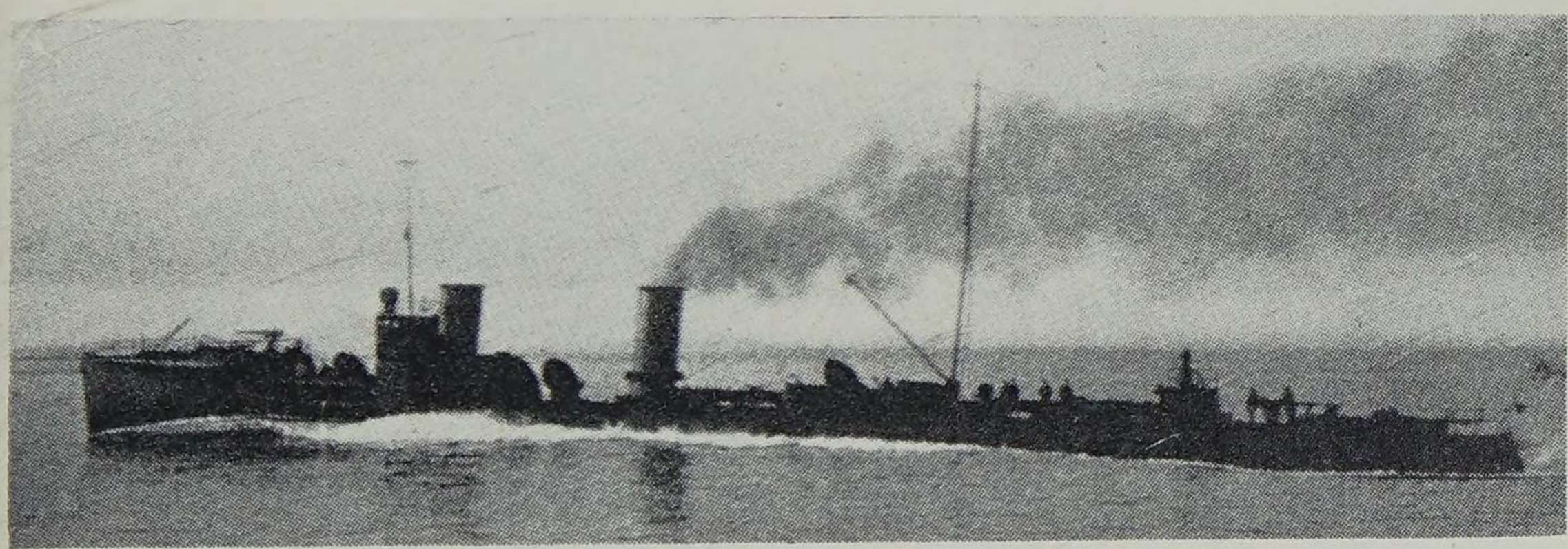
S13 CLASS (S13-24)

Length: 234½ ft. *Beam:* 24⅓ ft. *Displacement:* 568—695 tons.
Turbines. 2 screws. 15,000—22,000 h.p. 34—37 knots.
Guns: 2—4.1 in., 1—3.5 in. *Torpedo tubes:* 4—19.7 in. *Mines:* 18.
Complement: 75—95.
Two funnels (Code 21). T. tubes (plan 8).

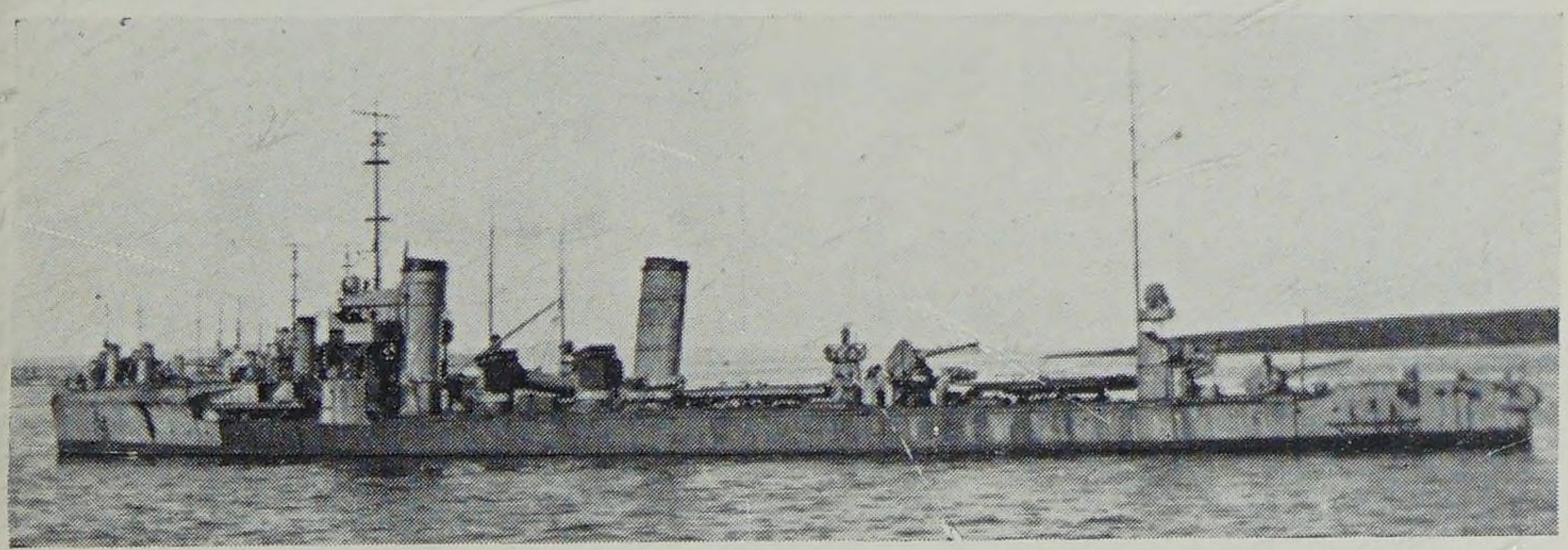
Number	Completed		
S13	1912	1914	Sunk, accidental torpedo explosion in North Sea.
S14	1912	1915	Scrapped after internal explosion.
S15	1912	1917	Mined off Belgian Coast and scrapped at Ghent.
S16	1912	1918	Mined in North Sea.
S17	1912	1917	Mined in North Sea.
S18	1913	1931	Discarded. 1935 scrapped.
S19	1913	1931	Discarded. 1935 scrapped.
S20	1913	1917	Sunk by H.M.S. *Centaur* off Belgian Coast.
S21	1913	1915	Sunk, collision in North Sea.
S22	1913	1916	Mined in North Sea.
S23	1913	1932	T23 Tender.
S24	1913	1920	To U.K. and stranded near Torquay.



German destroyer G 10. [N.M.M. Greenwich



German destroyer S 16.



German destroyer S31 Class. [I.W.M.

V25 CLASS (V25-30)

Length: 257½ ft. *Beam:* 27½ ft. *Displacement:* 812—975 tons.
Turbines. 2 screws. 23,500—25,000 h.p. 33—36 knots.
Guns: 3—3.5 in. *Torpedo tubes:* 6—19.7 in. *Mines:* 24.
Complement: 85—100.
Two funnels (Code 21h). T. tubes (plan 9).

Number	Completed		
V25	1914	1915	Mined in North Sea.
V26	1914	1920	To U.K. and scrapped 1922.
V27	1914	1916	Sunk at Jutland.
V28	1914	1920	To U.K. and scrapped.
V29	1914	1916	Sunk at Jutland.
V30	1914	1918	Mined in North Sea—(en route to surrender).

S31 CLASS (S31-36, 49-52)

Length: 261 ft. *Beam:* 27½ ft. *Displacement:* 802—971 tons.
Otherwise as V25 except T tubes (plan 9a).

Number	Completed		
S31	1914	1915	Mined in the Baltic.
S32	1914	1919	Scuttled at Scapa, raised and scrapped 1925.
S33	1914	1918	Torpedoed by submarine L10 in North Sea.
S34	1914	1918	Mined in North Sea.
S35	1914	1916	Sunk at Jutland.
S36	1915	1919	Scuttled at Scapa, raised, and scrapped 1926.

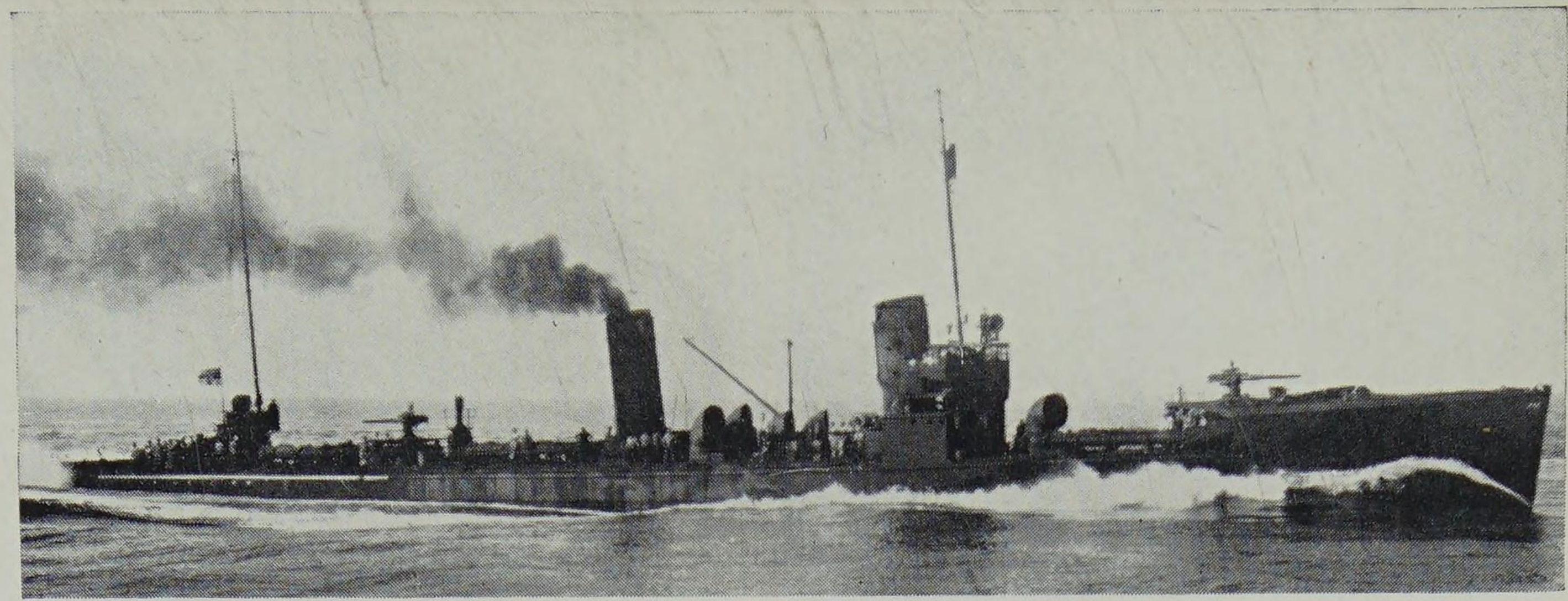
As S31 but 802—1,074 tons and geared turbines.

Number	Completed		
S49	1915	1919	Scuttled at Scapa.
S50	1915	1919	Scuttled at Scapa, raised, and scrapped 1925.
S51	1915	1919	Scuttled at Scapa, raised, and scrapped 1922.
S52	1915	1919	Scuttled at Scapa, raised, and scrapped 1925.

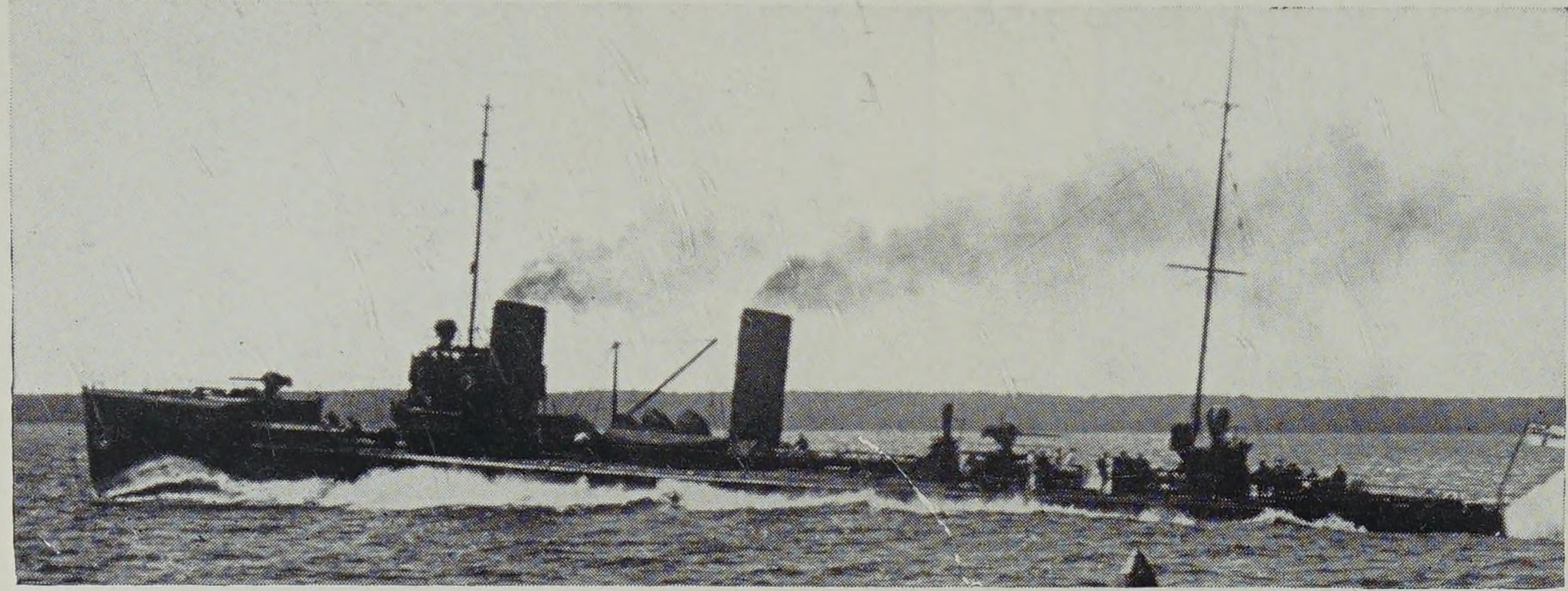
G37 CLASS (G37-42)

Length: 261 ft. *Beam:* 27½ ft. *Displacement:* 822—1,051 tons.
Turbines. 2 screws. 24,000—25,000 h.p. 33—36 knots.
Guns: 3—3.5 in. *Torpedo tubes:* 6—19.7 in. *Mines:* 24.
Complement: 85—100.
Two funnels (Code 21). T. tubes (plan F9).

Number	Completed		
G37	1915	1917	Mined off Walcheren.
G38	1915	1919	Scuttled at Scapa, raised and scrapped 1928.
G39	1915	1919	Scuttled at Scapa, raised, and scrapped 1927.
G40	1915	1919	Scuttled at Scapa, raised, and scrapped 1926.



German destroyer
V 43.
[N.M.M. Greenwich



German destroyer
V 47.
[N.M.M. Greenwich

As above but length 272⅓ ft., 960—1,147 tons and higher funnels.

Number	Completed		
G41	1915	1918	Blown up at Bruges on evacuation.
G42	1915	1917	Rammed and sunk by H.M.S. *Broke* near Goodwin Sands.

V43 CLASS (V43-48)

As G37 class but 852—1,016 tons, geared turbines and T. tubes to plan 9.

Number	Completed		
V43	1915	1919	Scuttled at Scapa, raised, to U.S.A. and sunk as target 1921.
V44	1915	1919	Scuttled at Scapa, raised, and scrapped 1925.
V45	1915	1919	Scuttled at Scapa, raised, and scrapped 1922.
V46	1915	1919	Scuttled at Scapa, raised, to France and scrapped 1924.

As V43 but length 272⅔ ft., 924—1,188 tons and guns 2—4.1 in., 1—3.5 in.

Number	Completed		
V47	1915	1918	Scuttled in Flanders on evacuation.
V48	1915	1916	Sunk at Jutland.

S53 CLASS (S53-66)

Length: 272⅔ ft. *Beam:* 27½ ft. *Displacement:* 919—1,170 tons.
Geared turbines. 2 screws. 24,000—25,000 h.p. 35—36 knots.
Guns: 3—4.1 in. *Torpedo tubes:* 6—19.7 in. *Mines:* 24.
Complement: 85—100.
Two funnels (Code 21h with distinctive ribs). T. tubes (plan 9a).

Number	Completed		
S53	1915	1919	Scuttled at Scapa, raised, and scrapped 1927.
S54	1916	1919	Scuttled at Scapa, raised, and foundered 1921.
S55	1916	1919	Scuttled at Scapa, raised, and scrapped 1925.
S56	1916	1919	Scuttled at Scapa, raised, and scrapped 1928.
S57	1916	1916	Mined in Gulf of Finland.
S58	1916	1916	Mined in Gulf of Finland.
S59	1916	1916	Mined in North Sea.
S60	1916	1919	Scuttled at Scapa, raised, and scrapped 1920.
S61	1916	1918	Scuttled in Flanders on evacuation.
S62	1916	1918	Mined off Jutland.
S63	1916	1919	Scuttled at Scapa, raised and in 1920 became Italian *Ardimentoso*.
S64	1917	1917	Mined in the Baltic.
S65	1917	1919	Scuttled at Scapa.
S66	1917	1918	Mined off Jutland.

German destroyer S 66. [N.M.M. Greenwich

German destroyers. The nearest is S 65, next to one of the G 37 class.
[N.M.M. Greenwich

V67 CLASS (V67-84)

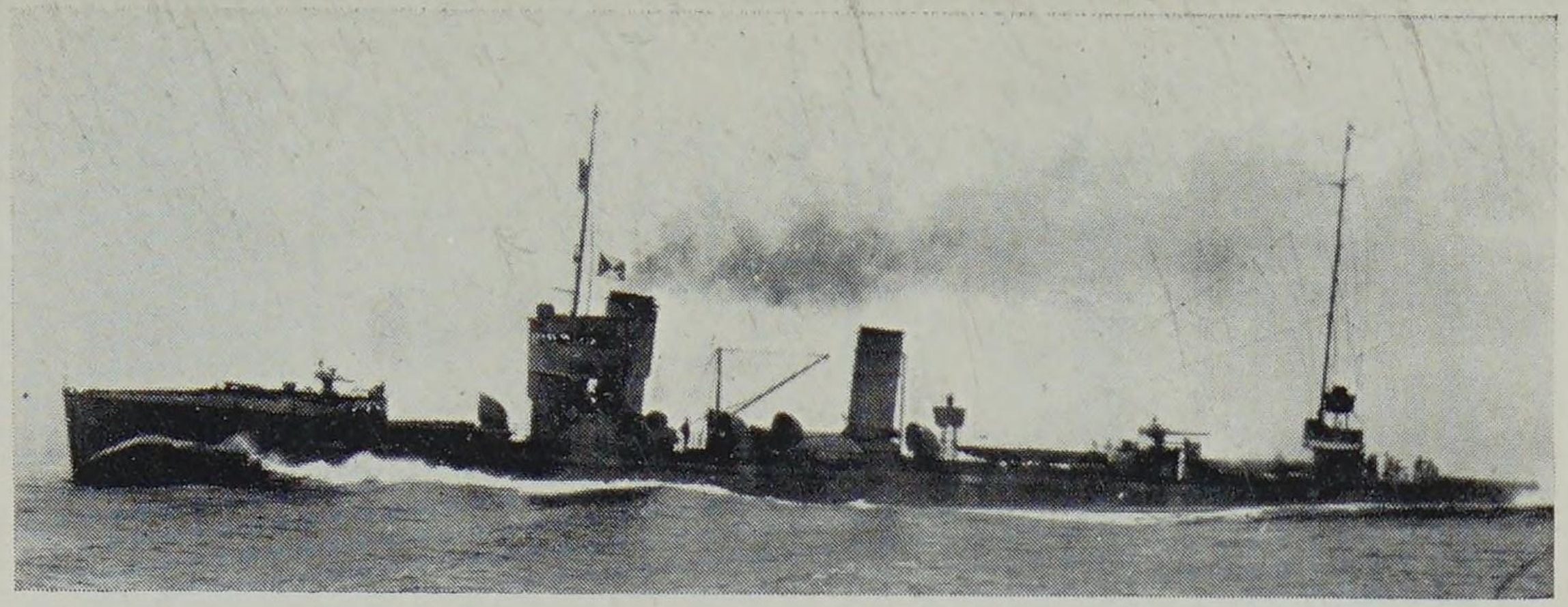
Details as S53 class, except length 269 ft., 24—1,188 tons and appearance. Two funnels (Code 21h). T. tubes (plan 9) V83-4 differed in detail.

Number	Completed		
V67	1915	1918	Scuttled in Flanders in evacuation.
V68	1915	1918	Mined in North Sea.
V69	1916	1917	Badly damaged in action, 1918 scuttled in Flanders on evacuation.
V70	1916	1919	Scuttled at Scapa, raised, and scrapped 1929.
V71	1916	1920	To U.K. and scrapped 1921.
V72	1916	1916	Mined in Gulf of Finland.
V73	1916	1919	Scuttled at Scapa, raised, and scrapped 1922.
V74	1916	1918	Scuttled in Flanders on evacuation.
V75	1916	1916	Mined in Gulf of Finland.
V76	1916	1916	Mined in Gulf of Finland.
V77	1916	1918	Scuttled in Flanders on evacuation.
V78	1916	1919	Scuttled at Scapa, raised, and scrapped 1925.
V79	1916	1920	Became French *Pierre Durand*. 1933 Discarded.
V80	1916	1919	Scuttled at Scapa, raised, and scrapped 1922.
V81	1916	1919	Scuttled at Scapa, raised, and foundered.
V82	1916	1919	Scuttled at Scapa, raised, and scrapped.
V83	1916	1919	Scuttled at Scapa, raised, and scrapped 1928.
V84	1916	1917	Mined in North Sea.

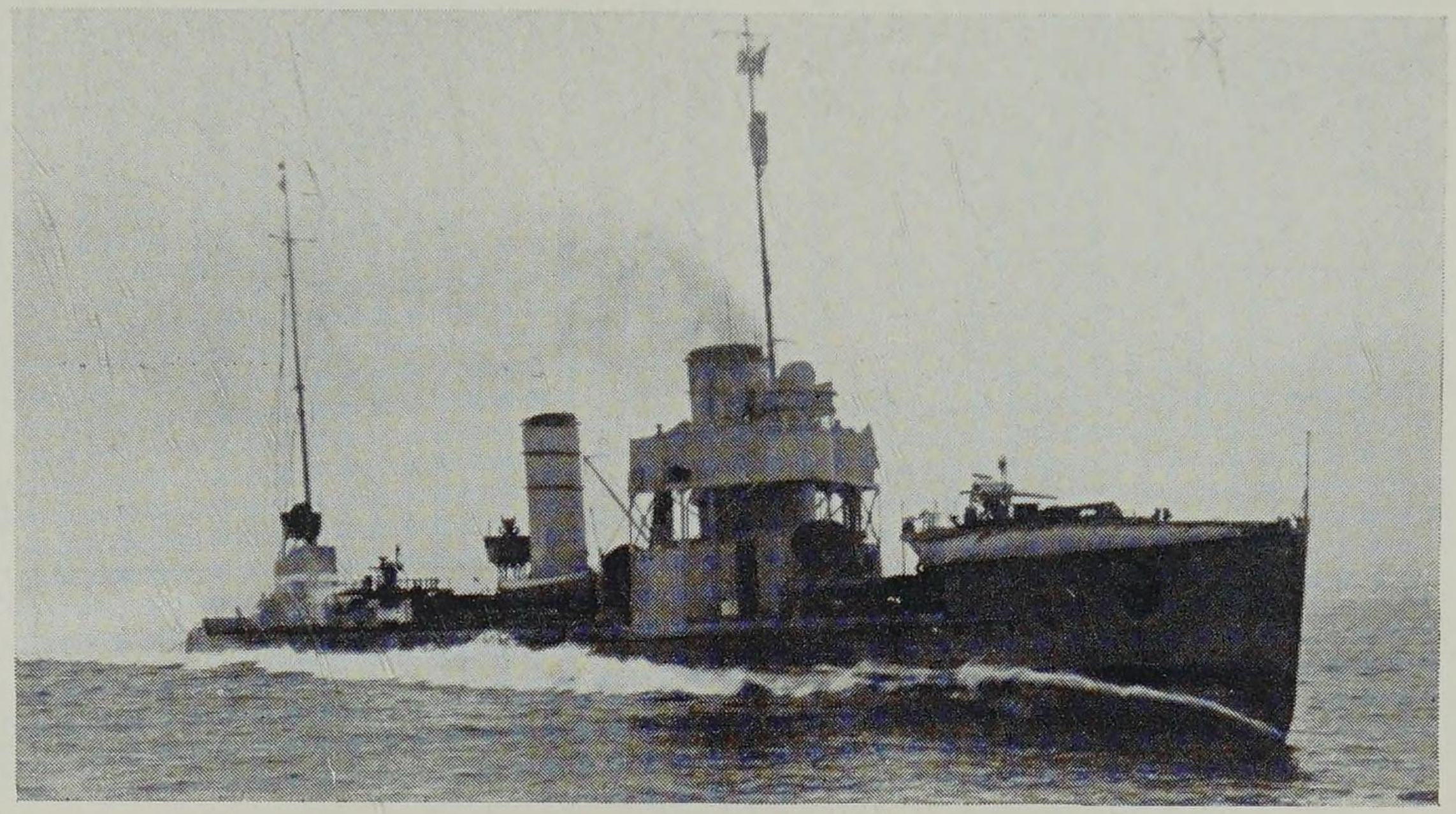
G85 CLASS (G85-95)

Length: 272¼ ft. *Beam:* 27½ ft. *Displacement:* 960—1,147 tons.
Turbines. 2 screws. 24,000—26,500 h.p. 34 knots.
Guns: 3—4.1 in. *Torpedo tubes:* 6—19.7 in. *Mines:* 24.
Complement: 96—100.
Two funnels (Code 21h). T. tubes (plan F9 with raked mainmast).

Number	Completed		
G85	1915	1917	Torpedoed by H.M.S. *Broke* near Goodwin Sands.
G86	1916	1919	Scuttled at Scapa, raised, and scrapped 1926.
G87	1916	1918	Mined in North Sea.
G88	1916	1917	Torpedoed by a C.M.B. off Zeebrugge.
G89	1916	1919	Scuttled at Scapa, raised, and scrapped 1926.
G90	1916	1916	Mined in Gulf of Finland.
G91	1916	1919	Scuttled at Scapa, raised, and scrapped 1925.
G92	1916	1919	Scuttled at Scapa, raised, and scrapped 1922.
G93	1916	1918	Mined in the North Sea.
G94	1916	1918	Mined in the North Sea.
G95	1916	1920	To U.K., and scrapped 1921-2.



German destroyer V 67.
[N M.M Greenwich



German destroyer V 75.
[N.M.M Greenwich

G 96

Length: 277⅓ ft. *Displacement:* 990—1,047 tons. *Mines:* 40.
Other figures as G85 class.
Two funnels (Code 21h). T. tubes (plan 10c with long forecastle).

Number	Completed	
G96	1916	1917 Mined off Ostend.

Three-funnelled ships of the following classes can be distinguished by the armament disposed between (a) 1st and 2nd funnels, (b) 2nd and 3rd funnels:—

B97-8	(a) one gun	(b) one gun.
V99-100	(a) nil	(b) two guns.
G101-4	(a) two T. tubes	(b) one gun.
B109-112	(a) nil	(b) one gun.

Missing numbers V105-8, originally ordered by Holland, were classed as Torpedo boats.

B97 CLASS (B97-98)

Length: 321½ ft. *Beam:* 30⅔ ft. *Displacement:* 1,374—1,843 tons.
Turbines. 2 screws. 36,000—40,000 h.p. 35.5—37.5 knots.
Guns: 4—4.1 in. *Torpedo tubes:* 6—19.7 in. *Mines:* 24.
Complement: 140—160.
Three funnels (Code 35).

Number	Completed	
B97	1915	1920 Became Italian *Cesare Rossarol.*
B98	1915	1920 Seized at Scapa and later wrecked there.

V99 CLASS (V99-100)

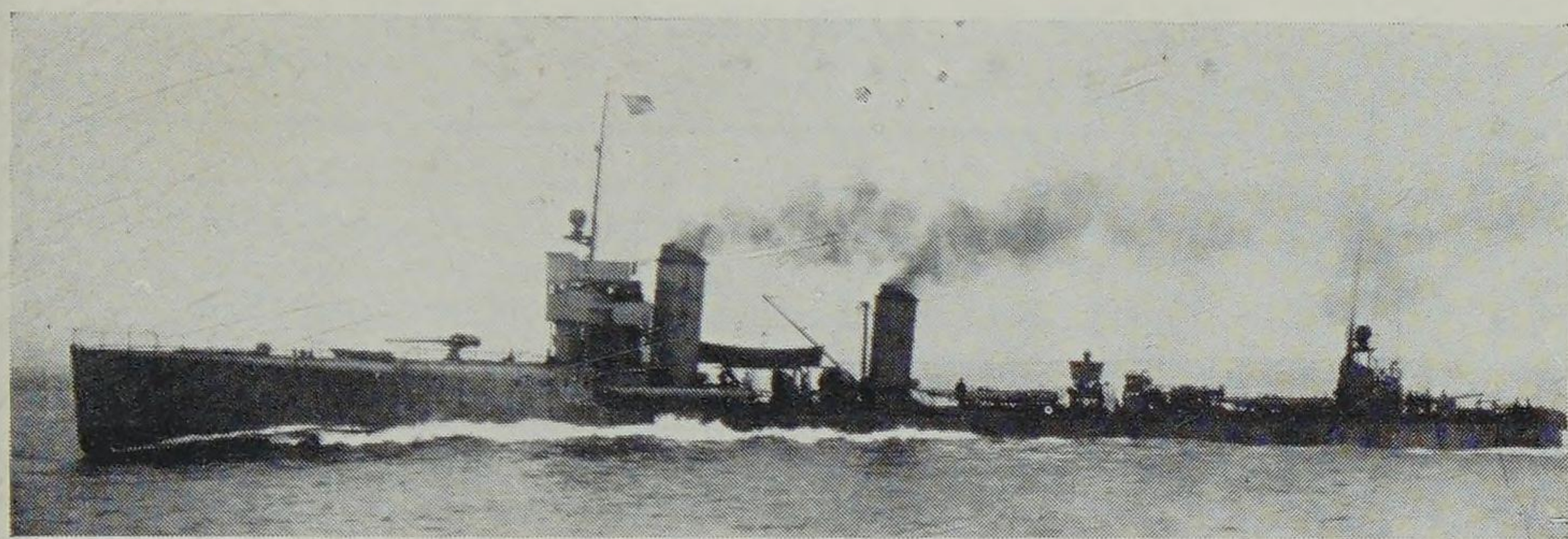
Length: 324¾ ft. *Displacement:* 1,350—1,847 tons. 40,000—42,000 h.p.
Otherwise as B97 with different disposition of armament.

Number	Completed	
V99	1915	1915 Sunk by Russian warships in Gulf of Riga.
V100	1915	1919 Scuttled at Scapa, raised, and scrapped in France.

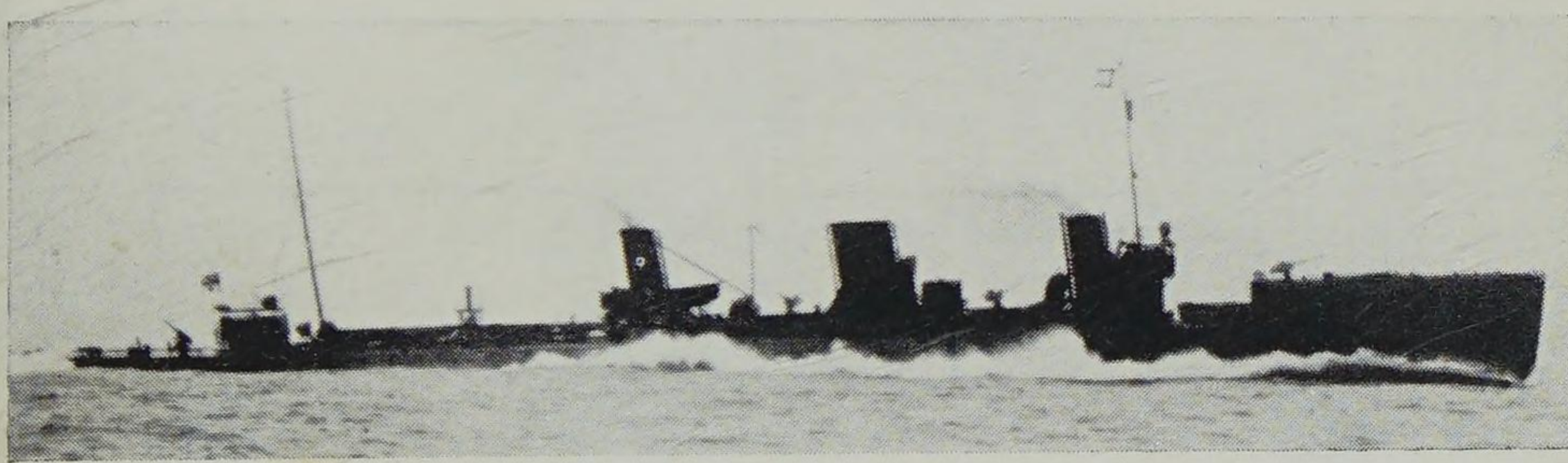
G101 CLASS (G101-104)

Length: 312⅔ ft. *Beam:* 31¼ ft. *Displacement:* 1,116—1,734 tons.
Turbines. 2 screws. 28,000—29,500 h.p. 32—34 knots.
Guns: 4—3.5 in. (later 4.1 in.). *Torpedo tubes:* 6—19.7 in. *Mines:* 24.
Complement: c.130.
Three funnels (Code 31h). Originally ordered by Argentina.

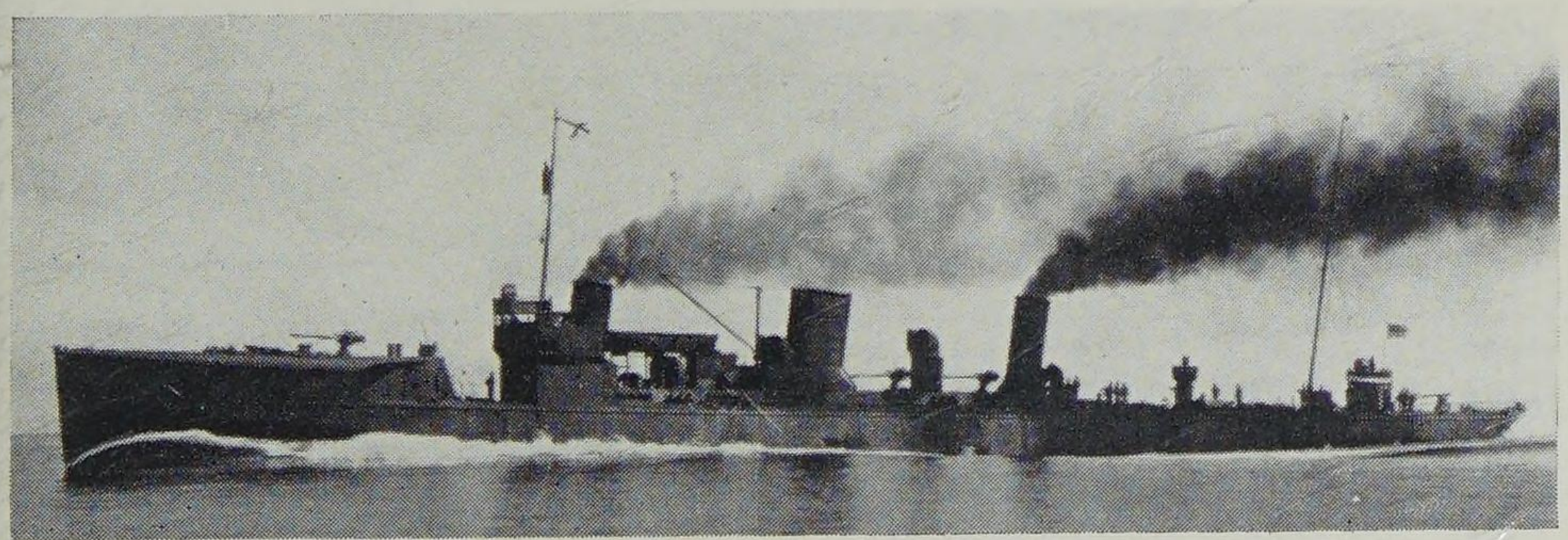
Number	Completed	
G101	1915	1919 Scuttled at Scapa, raised, and scrapped 1926.
G102	1915	1919 Scuttled at Scapa, raised, and destroyed as bomber target in U.S.A. 1920.
G103	1915	1919 Scuttled at Scapa, raised, and foundered in storm 1925
G104	1915	1919 Scuttled at Scapa, raised, and scrapped 1926.



German destroyer G96 [N.M.M. Greenwich



German destroyer B 97. [N.M.M. Greenwich



German destroyer V 99. [N.M.M. Greenwich

B109 CLASS (B109-112)

As B97 but different arrangement of armament.

Number	Completed		
B109	1915	1919	Scuttled at Scapa, raised, and scrapped 1926.
B110	1915	1919	Scuttled at Scapa, raised, and scrapped 1926.
B111	1915	1919	Scuttled at Scapa, raised, and scrapped 1926.
B112	1915	1919	Scuttled at Scapa, raised, and scrapped 1926.

The next two ships, designed as Leaders, were the largest destroyers of their day. They did not however come up to expectations on trial and were still under modification at the end of the War.

S113 CLASS (S113-115)

Length: 337¾ ft. *Beam:* 33½ ft. *Displacement:* 2,060—2,415 tons.
Turbines. 2 screws. 45,000—56,000 h.p. 34—37 knots.
Guns: 4—5.9 in. *Torpedo tubes:* 4—23.6 in. *Mines:* 40. *Complement:* c.170.
Two funnels (Code 24h).

Number	Completed		
S113	1918	1920	Became French *Amiral Senes*. Discarded 1936.

Sister ships S114, S115 scrapped before completion in 1919.

V116 CLASS (V116-118)

Length: 352⅔ ft. *Beam:* 34 ft. *Displacement:* 2,060—2,360 tons.
Otherwise as S113.

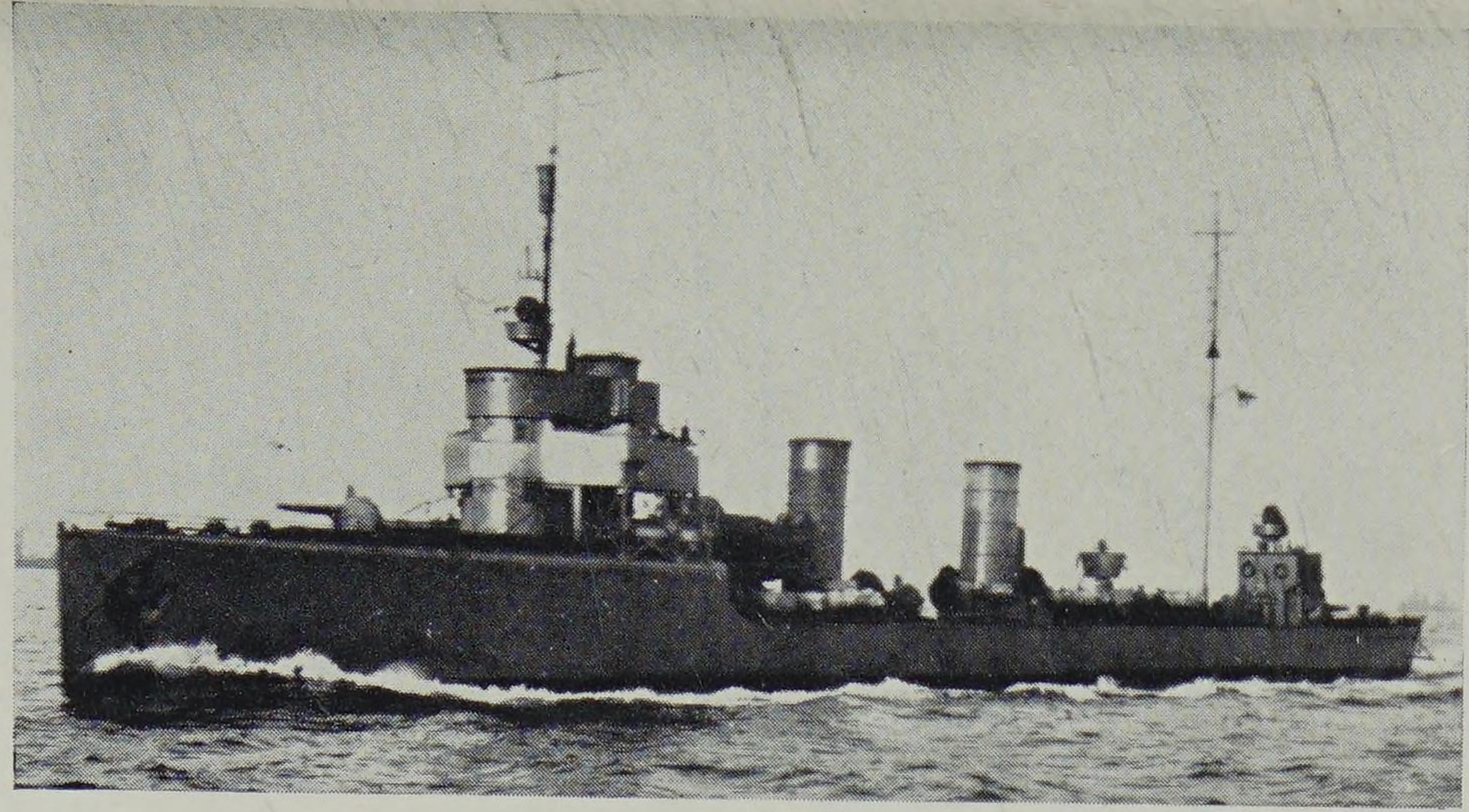
Number	Completed		
V116	1918	1920	Became Italian *Premuda*.

Sister ships V117, V118 scrapped before completion in 1921.

V125 CLASS (V125-130)

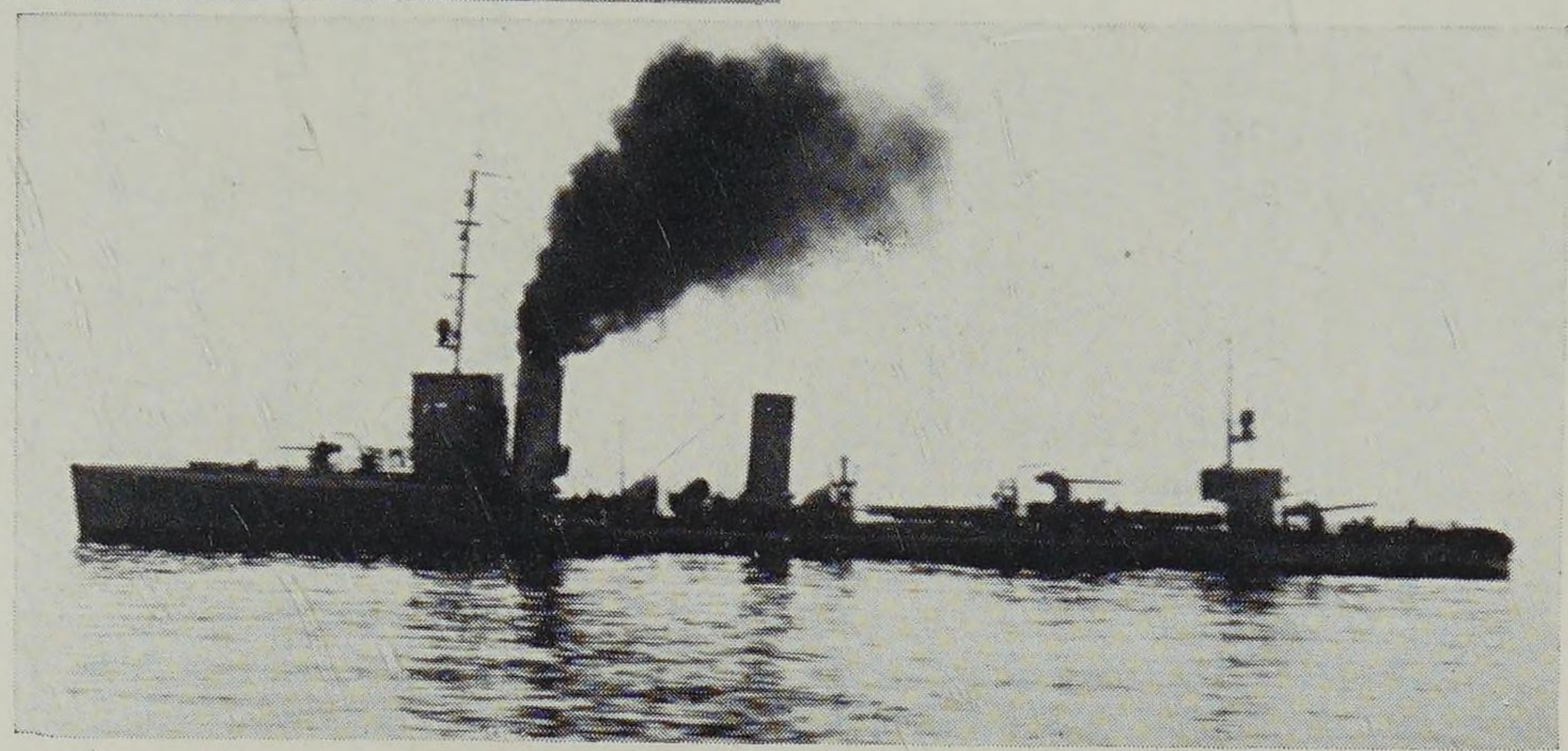
Length: 269 ft. *Beam:* 27½ ft. *Displacement:* 924—1,188 tons.
Turbines. 2 screws. 23,500—25,500 h.p. 34—37 knots.
Guns: 3—4.1 in. *Torpedo tubes:* 6—19.7 in. *Mines:* 40. *Complement:* c.110.
Two funnels (Code 21h). T. tubes (plan 10b).

Number	Completed		
V125	1917	1919	Scuttled at Scapa, raised, and scrapped 1922.
V126	1917	1919	Scuttled at Scapa, raised, and scrapped in France 1925.
V127	1917	1919	Scuttled at Scapa, raised, and scrapped in Holland 1922
V128	1917	1920	To U.K. and scrapped 1922.
V129	1917	1919	Scuttled at Scapa, raised, and scrapped 1925.
V130	1918	1920	Became French *Buino*.



(*left*) German destroyer G 101 Class.
[*I.W.M*

(*right*) German destroyer V 125 Class
[*I W M.*



S131 CLASS (S131-139)

Length: 272⅔ ft. *Beam:* 27½ ft. *Displacement:* 919—1,170 tons.
Other figures as for V125. T. tubes (plan 10a).

Number	Completed		
S131	1917	1919	Scuttled at Scapa.
S132	1917	1919	Scuttled at Scapa, raised, and sunk as target off U.S.A. 1921.
S133	1918	1920	Became French *Chastang*, discarded 1934.
S134	1918	1920	Became French *Vesco*, discarded 1935.
S135	1918	1920	Became French *Mazare*, discarded 1935.
S136	1918	1919	Scuttled at Scapa, raised, and scrapped 1928.
S137	1918	1919	Scuttled at Scapa, raised, and scrapped 1922.
S138	1918	1919	Scuttled at Scapa, raised, and scrapped 1926.
S139	1918	1920	Became French *Deligny*, discarded 1934.

H145 CLASS (H145-147)

Length: 277⅓ ft. *Beam:* 27½ ft. *Displacement:* 990—1,147 tons.
Other figures as for V125. T. tubes (plan 10c).

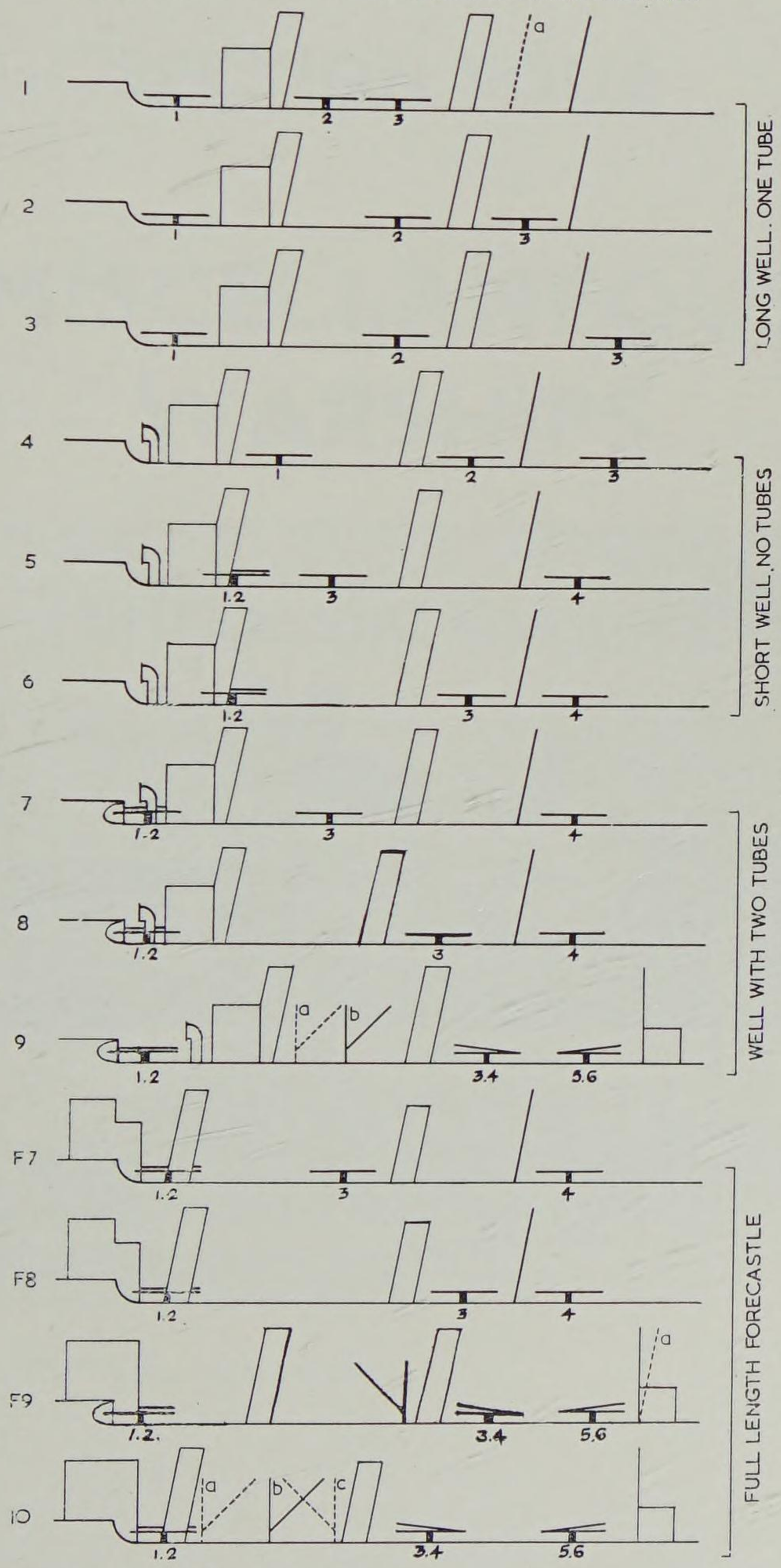
Number	Completed		
H145	1918	1919	Scuttled at Scapa, raised, and scrapped 1928.
H146	1918	1920	Became French *Rageot de la Touche*.
H147	1920	1920	Became French *Delage*.

Note. Missing numbers 119-124, 140-144; 148-190 were scrapped on the stocks or never laid down. Nos. 191-223 were only projected.

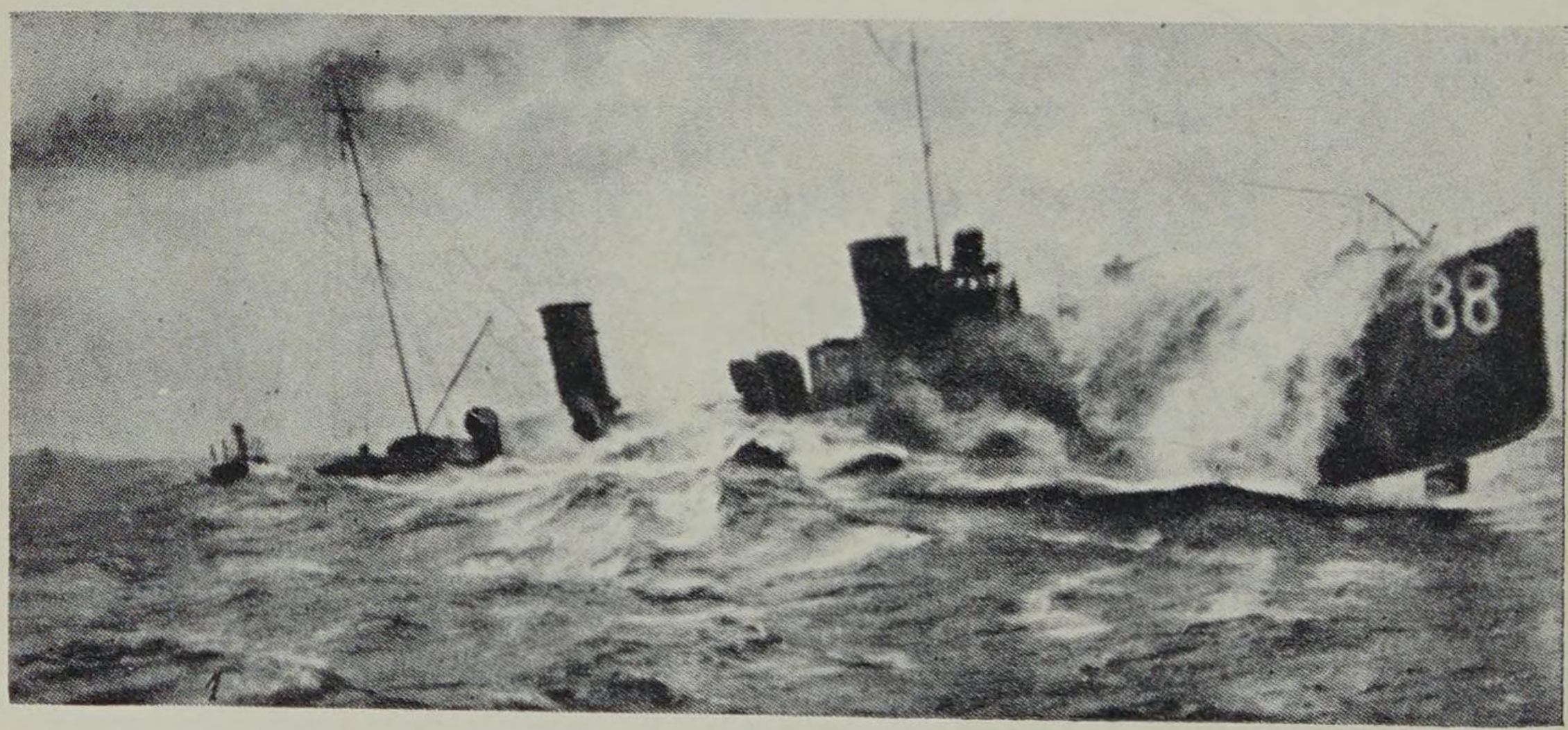
GERMAN TWO FUNNELLED DESTROYERS

(T90-197, V1-G96, V125-H147)

DIAGRAMATIC PLAN OF TORPEDO TUBES AND MAIN FEATURES



Note: Twin tubes diverged 15° horizontally

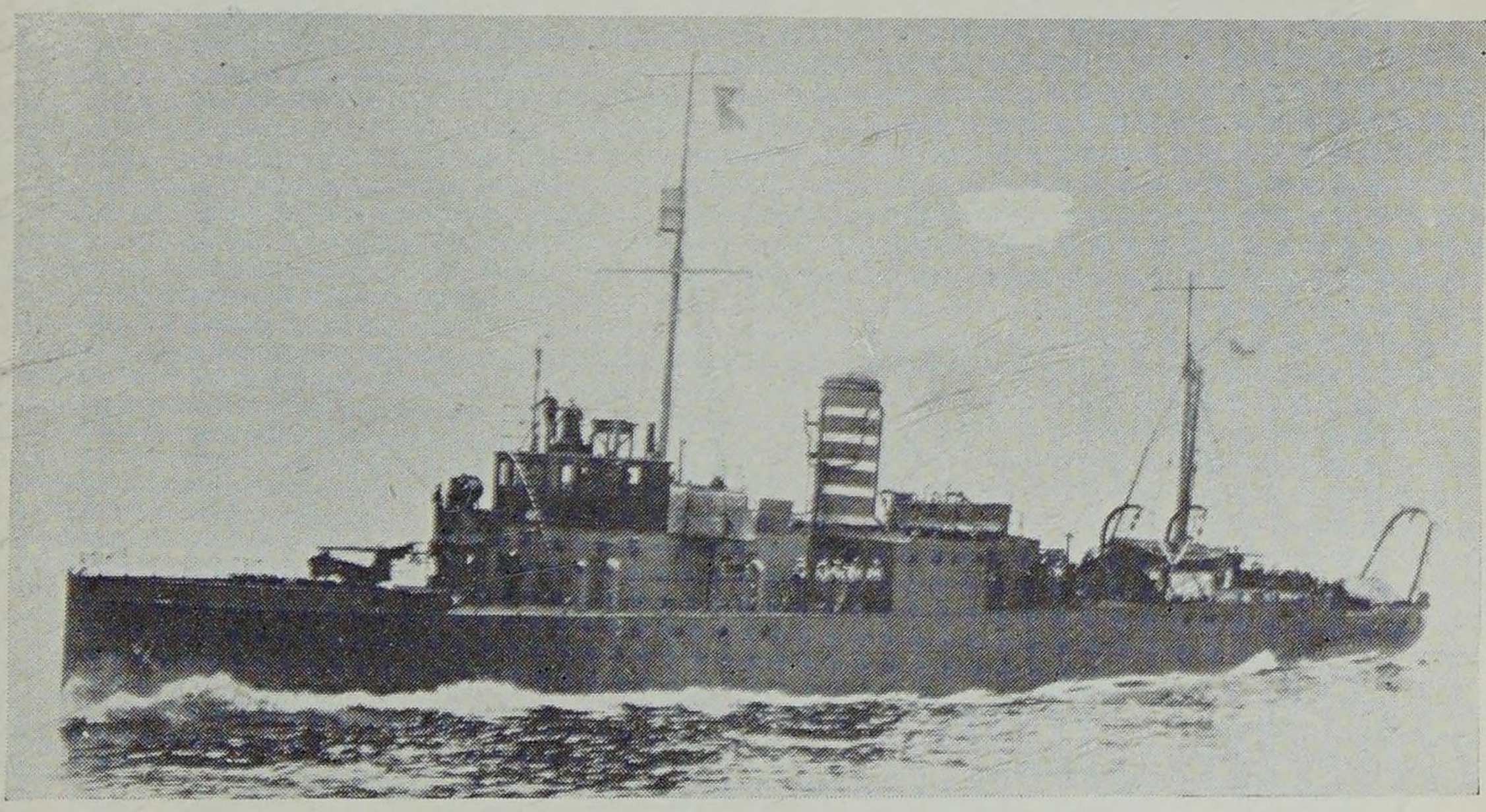


German Destroyer T118 in heavy weather. Note the bow rudder, fitted to most of these ships.

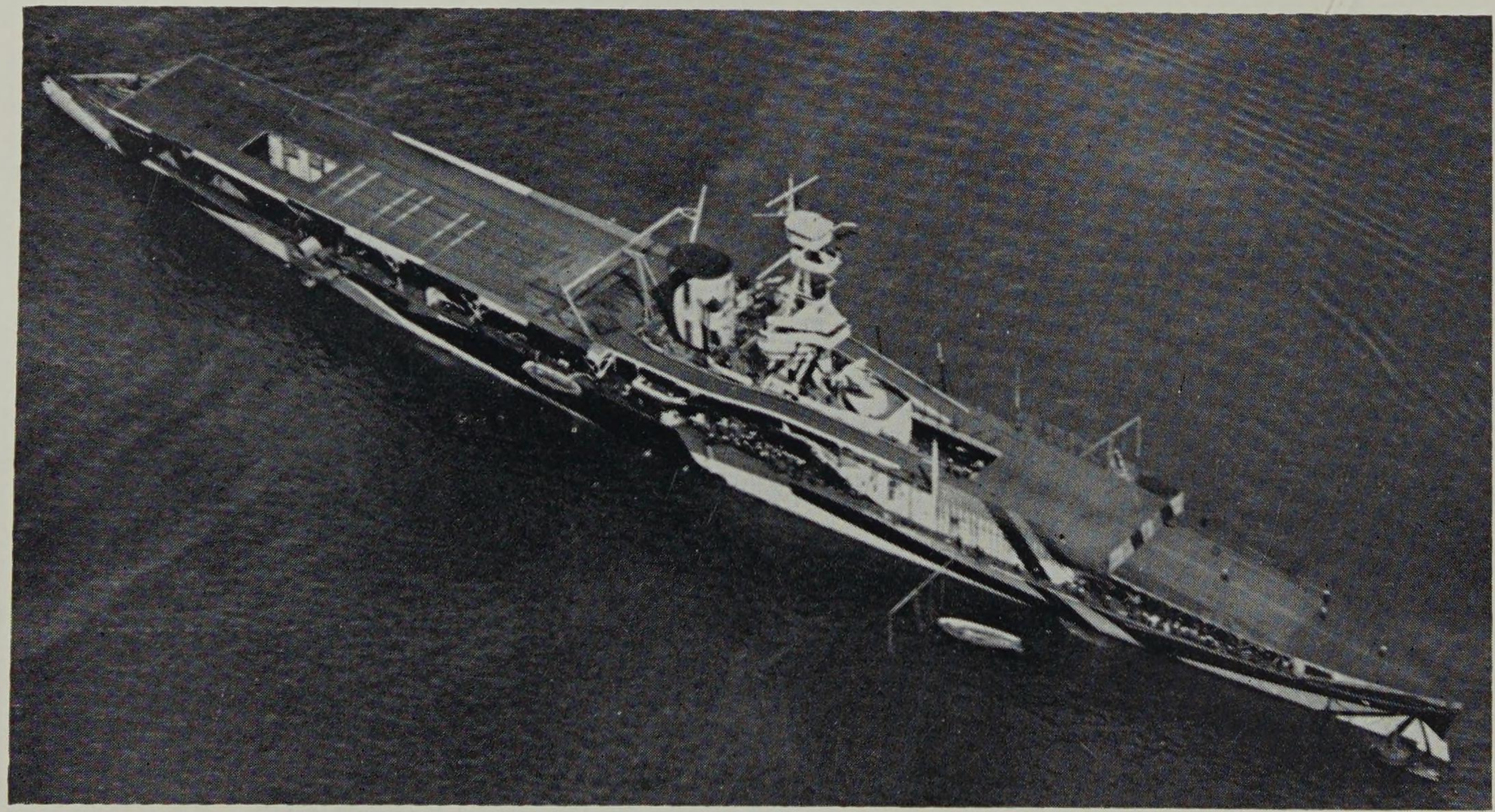
SECTION FOUR

MISCELLANEOUS WARSHIPS

(British and German)



H.M.S. *Belvoir*, Hunt Class Minesweeper [*I.W.M.*



H.M.S. *Furious*, fully converted to aircraft carrier in 1918. [*I.W.M.*

Aircraft Carriers

IN Part 1 of this series the temporary fitting in 1911-12 of three pre-Dreadnoughts with forecastle runways was mentioned. The first aircraft take-off from a British warship was made from H.M.S. *Hibernia* in January 1912, and the first take-off from a ship under way was from her sister ship H.M.S. *Africa* in the May following. In 1913 the old cruiser H.M.S. *Hermes* was also given a forward launching platform and carried two seaplanes with wheels for taking off as well as floats. This equipment had however been removed from all these ships by the outbreak of war. Development of the aircraft carrier began therefore, in the war years and was governed both by the evolution of aircraft types and by the availability of suitable ships which could be spared for conversion.

The Royal Naval Air Service (R.N.A.S.), came into being on the 1st July 1914, and was amalgamated with the R.F.C. to form the R.A.F. on the 1st April, 1918, by which date the R.N.A.S. operated some 2,950 aircraft as well as shore-based airships. The first vessel to be completed as an aircraft carrier was H.M.S. *Ark Royal*, laid down as a collier and converted whilst building. Seaplanes carried in the holds were lifted by cranes, lowered on to the water for take-off and subsequently brought inboard again, a somewhat hazardous procedure even in calm weather. She also had an early form of launching trolley on deck. The *Ark Royal* later did good service as an aircraft transport and repair ship.

Much faster ships were necessary to accompany the fleet on scouting duties and, later, to reach sufficient speed for aircraft take-off. Between 1914 and 1917 the fast cross-channel steamers *Empress*, *Engadine*, *Riviera*, *Ben-My-Chree*, *Manxman*, *Vindex*, *Pegasus*, *Nairana* and the much larger Cunard liner *Campania* were taken over. August 1915 saw the first successful take-off by an aircraft with wheeled floats, from the *Campania*, whilst the first effective air torpedo attack was made by a 'plane from the *Ben-My-Chree* in the Dardanelles. Three months later a land aircraft took off from the *Vindex* and henceforward seaplanes were steadily replaced by less cumbersome aeroplanes.

As the war progressed and the role of aircraft increased in scope and importance, warships also were converted to carriers. The light battle cruiser *Furious* finally emerged fully converted to a carrier in March 1918. In July seven aircraft flown off her carried out a successful raid on Tondern Zeppelin base, destroying two, L54 and L60. On the 2nd August, 1918, the first successful aircraft landing was made on her fore deck. Almost exactly three years after the first take-off from the *Campania*, the embryonic stage of the carrier was over. In October 1918 the *Vindictive*, laid down as the cruiser *Cavendish*, and the *Argus*, laid down as a liner, joined the fleet. H.M.S. *Argus* was completely flush-decked, smoke being emitted from side ducts aft. With normal funnels the air disturbances set up add greatly to the difficulties of landing on; post-war ships had funnels and superstructure placed well out on the starboard side. At the end of the war two other carriers were building, the *Eagle*, laid down as a sister ship to the battleship *Canada*, and the *Hermes*, the first ship to be *designed* as an aircraft carrier. Subsequent work on these ships was slowed down and they were not completed until 1923. Another carrier feature which originated in World War 1 was the catapult, experimental work being carried out on the *Slinger* (a converted dredger).

To-day it might appear that the naval air arm was rather inadequately provided for, but it must be remembered that the battleships and cruisers of the Grand Fleet carried over 120 planes by the end of the war, that ships of many categories down to trawlers carried observation balloons and that land-based planes and airships (103 in November 1918), were available for co-operation. Capital ships were equipped to carry a two-seater plane on a forward gun turret and a single-seater aft, whilst 22 light cruisers could each carry one plane. First satisfactory take-offs were as follows:—(a) Light cruiser, H.M.S. *Yarmouth* in June 1917 (*see* Part 2), (b) Capital ship, single seater, H.M.S. *Repulse* in October 1917, (c) Capital ship, two-seater, H.M.S. *Australia* in April 1918. There were also light aircraft platforms which could be towed by destroyers at up to 32 knots without smothering the aircraft in spray. Observation or kite ballons will have been noticed in a number of illustrations in earlier Parts of this series. In addition to these, merchant ships were converted to balloon ships for observation duties, among these being the Blue Funnel Line's *Hector*, which spotted for H.M.S. *Queen Elizabeth* at the Dardanelles and *Menelaus* which spotted for the monitors bombarding the seaward end of the German lines off the Flanders Coast.

H.M.S. ARK ROYAL

Length: 366 ft. *Beam:* 50¾ ft. *Displacement:* 7,020 tons.
Triple expansion. 1 screw. 3,000 h.p. 10.6 knots.
Guns: 4—12 pdr. (originally). *Complement:* 140-180.

Name	Completed	
Ark Royal	1914	1934 renamed Pegasus. 1947 sold for merchant service.

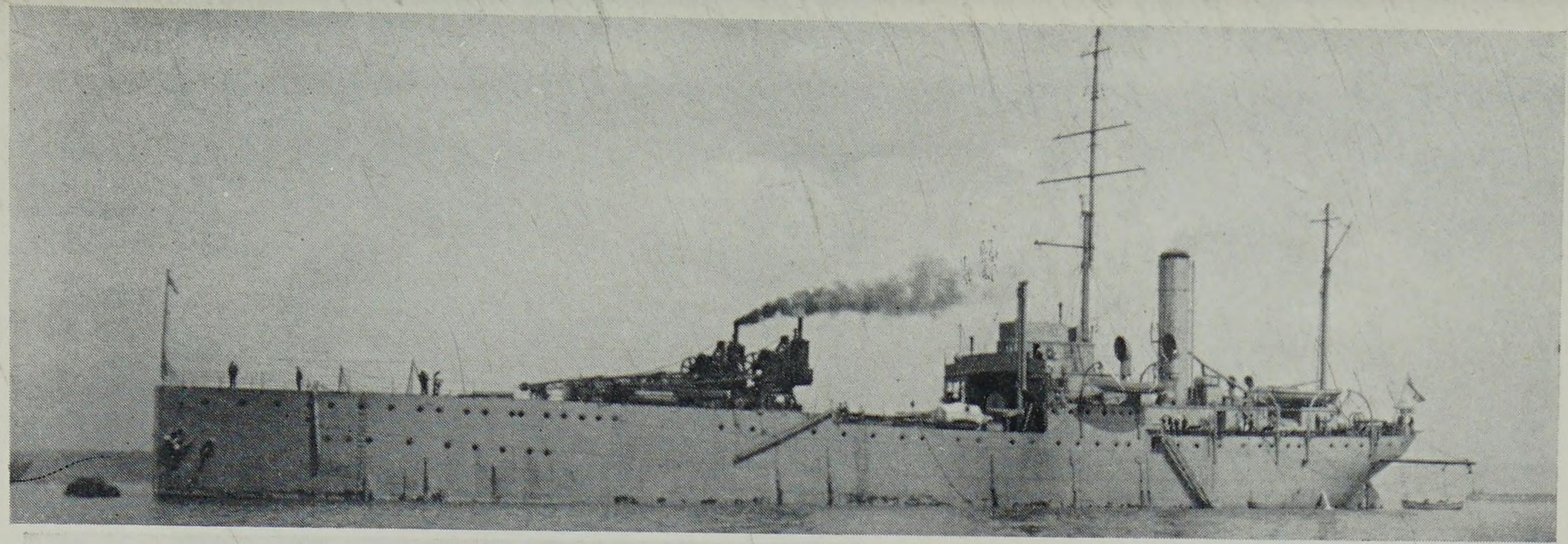
During the war served at Gallipoli and in E. Mediterranean.

CONVERTED CROSS-CHANNEL SHIPS

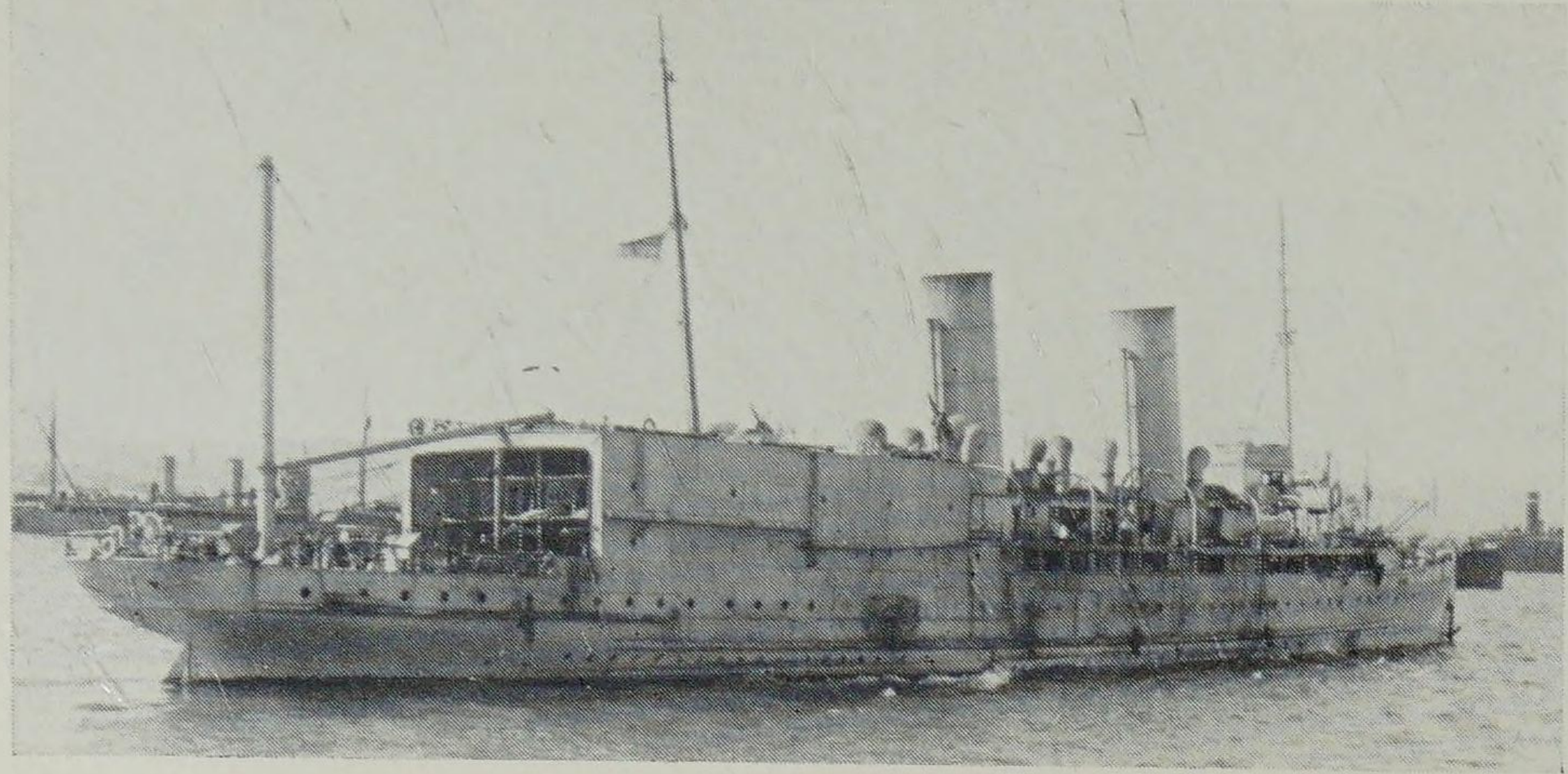
Length: 311-375 ft. (p). *Beam:* 40-46 ft. Turbines. 3 screws.
21.5-24.5 knots. *Guns:* 2—4 in., 1—6 pdr. A.A. *Complement:* c.250.

Name	Built	Gross tons	Former owners
Ben-My-Chree	1908	2,651	I.O.M.S.P. Co.
Empress	1907	1,694	S.E. & C. Rly.
Engadine	1911	1,676	S.E. & C. Rly.
Manxman	1904	2,174	Midland Rly.
Riviera	1911	1,675	S.E. & C. Rly.
Vindex (ex *Viking*)	1905	1,951	I.O.M.S.P. Co.

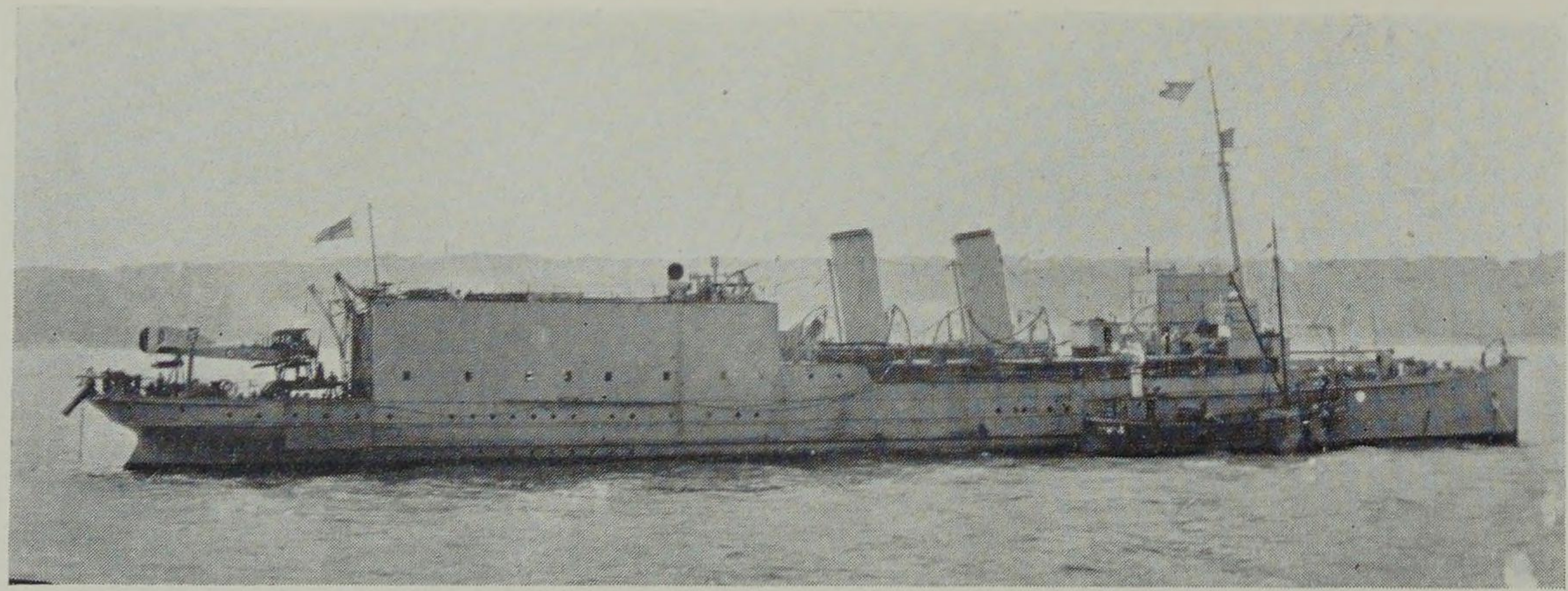
Ben-My-Cree with a service speed of 24.5 knots was the fastest cross-channel steamer in 1914. At the Dardanelles she launched the first successful air torpedo attack. 1917 sunk by Turkish shore batteries. *Engadine* attached to the Battle Cruiser Force at Jutland sent up the seaplane which spotted the High Seas Fleet. She also took part in the Cuxhaven air raid in 1914. The first land plane take-off was made from *Vindex* in Nov. 1915. Most of these ships moved from the North Sea to the Mediterranean as the war progressed and all except *Ben-My-Cree* were rapidly reconverted for their peace time services after the war.



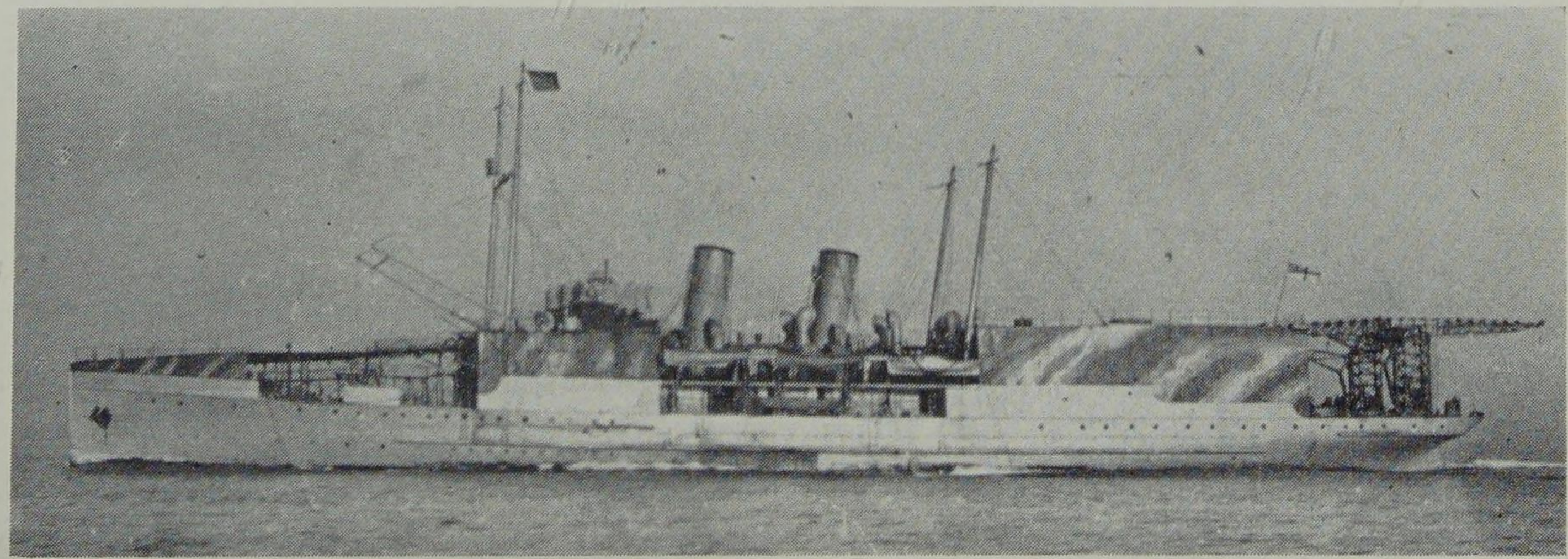
H.M.S. *Ark Royal*, aircraft carrier.
[*Sewd*



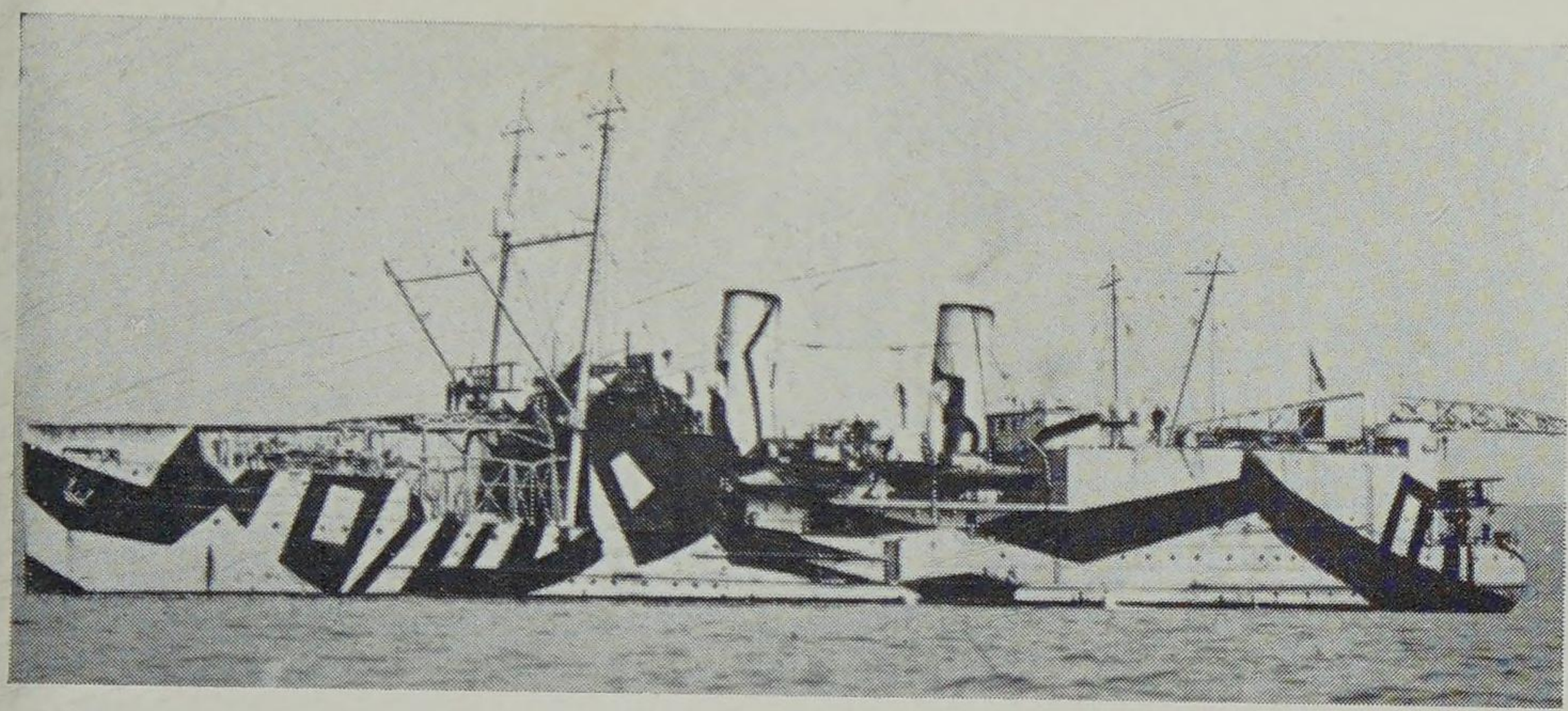
H.M.S. *Ben-My-Chree*, aircraft carrier at Mudros in 1915. [*I.W.M.*



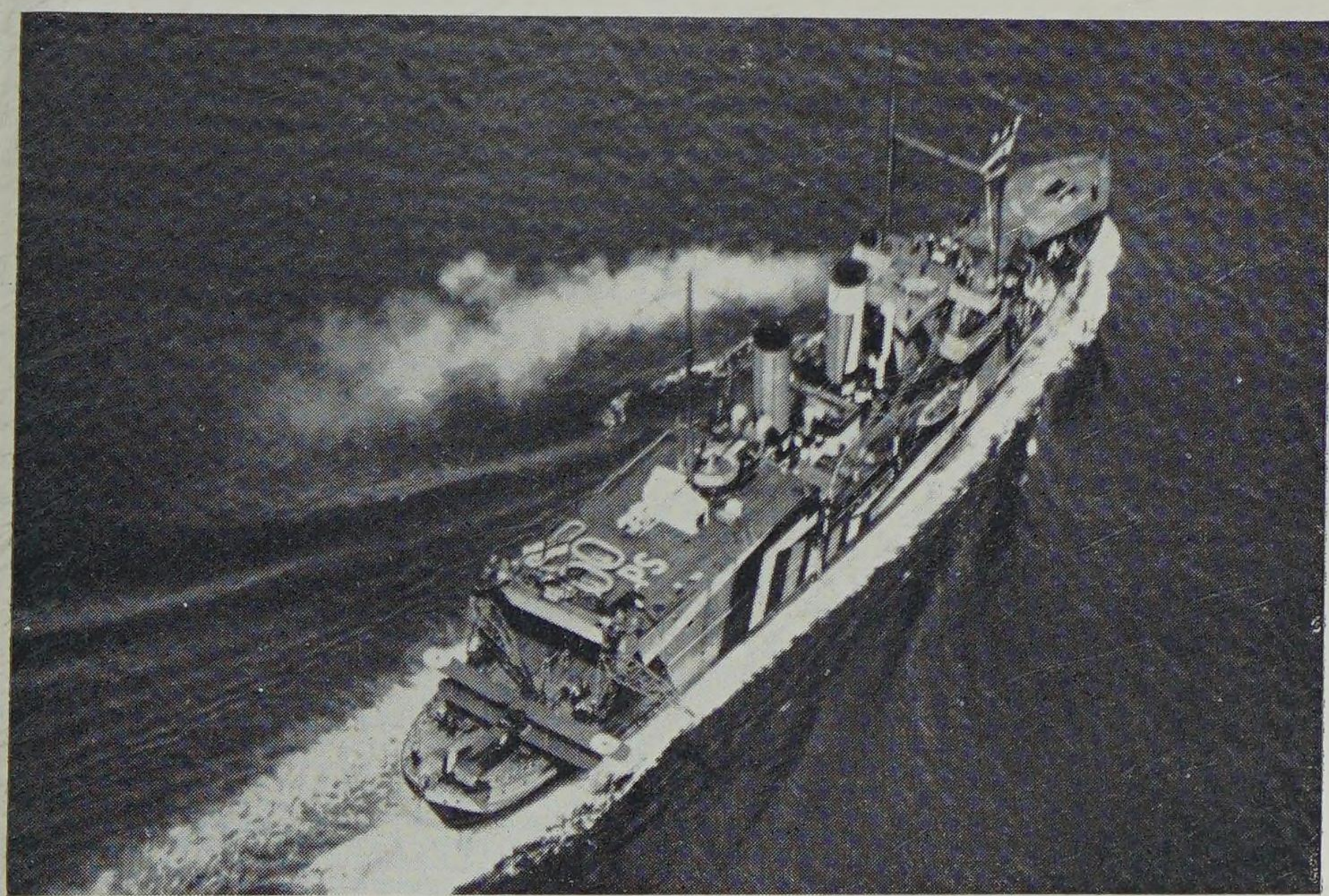
H.M.S. *Engadine*, aircraft carrier. [*I.W.M.*



H.M.S. *Manxman*, aircraft carrier. Note early camouflage. [*I.W.M.*



H.M.S. *Nairana*, aircraft carrier. [*I.W.M.*



H.M.S. *Pegasus*, aircraft carrier. Note deck recognition letters. [*I.W.M.*

Converted Short Sea Ships

Both ships, laid down as passenger vessels, were completed in 1917 as carriers.

H.M.S. NAIRANA

Length: 352 ft. *Beam:* 45½ ft. 3,042 tons gross.
Geared turbines. 2 screws. 6,700 h.p. 20 knots.
Guns: 2—12 pdr., 2—12 pdr. A.A. *Complement:* 278.

H.M.S. PEGASUS

Length: 332 ft. *Beam:* 43 ft. *Displacement:* 2,070 tons.
Otherwise as above except 9,500 h.p., 21 knots.

Nairana, converted to a passenger ship went to Tasmanian Steamships Pty. in 1922. *Pegasus* (laid down as the G.E. Rly. *Stockholm*), was converted to an aircraft tender in 1924 and sold in 1931. These ships saw wartime service in the North Sea, White Sea and Mediterranean.

H.M.S. CAMPANIA

Length: 622 ft. *Beam:* 65 ft. *Displacement:* 18,000 tons.
Triple expansion (5-cyl.). 2 screws. 28,000 h.p. 22 knots.
Guns: 6—4.7 in., 1—3 in. A.A. *Complement:* c. 600. *Planes:* 10.

Built in 1893, this famous Cunard record breaker with her long level superstructure was converted to a carrier in 1914-15. In 1916 her fore funnel was divided (see p. 13) to allow a longer flying-off deck. A few days before the Armistice she was sunk in collision with H.M.S. *Glorious* during a gale in the Firth of Forth.

H.M.S. FURIOUS

Length: 786½ ft. *Beam:* 88 ft. (over bulges). *Displacement:* 22,000 tons.
Geared turbines. 4 screws. 94,000 h.p. 32.5 knots.
Guns (1918): 10—5.5 in., 5—3 in. A.A. and smaller. *Planes:* 20.
Protection: belt 2-3 in., deck 1-3 in., bulges. *Complement:* 737.

Laid down as a light battle cruiser with 2—18 in. guns, she was completed in mid-1917 with the after 18 in. gun only, the fore-part being a carrier (see Part 1). In 1918 conversion to full carrier was completed. Reconstructed in 1921-5, she served in World War II and was not scrapped until 1949.

H.M.S. VINDICTIVE

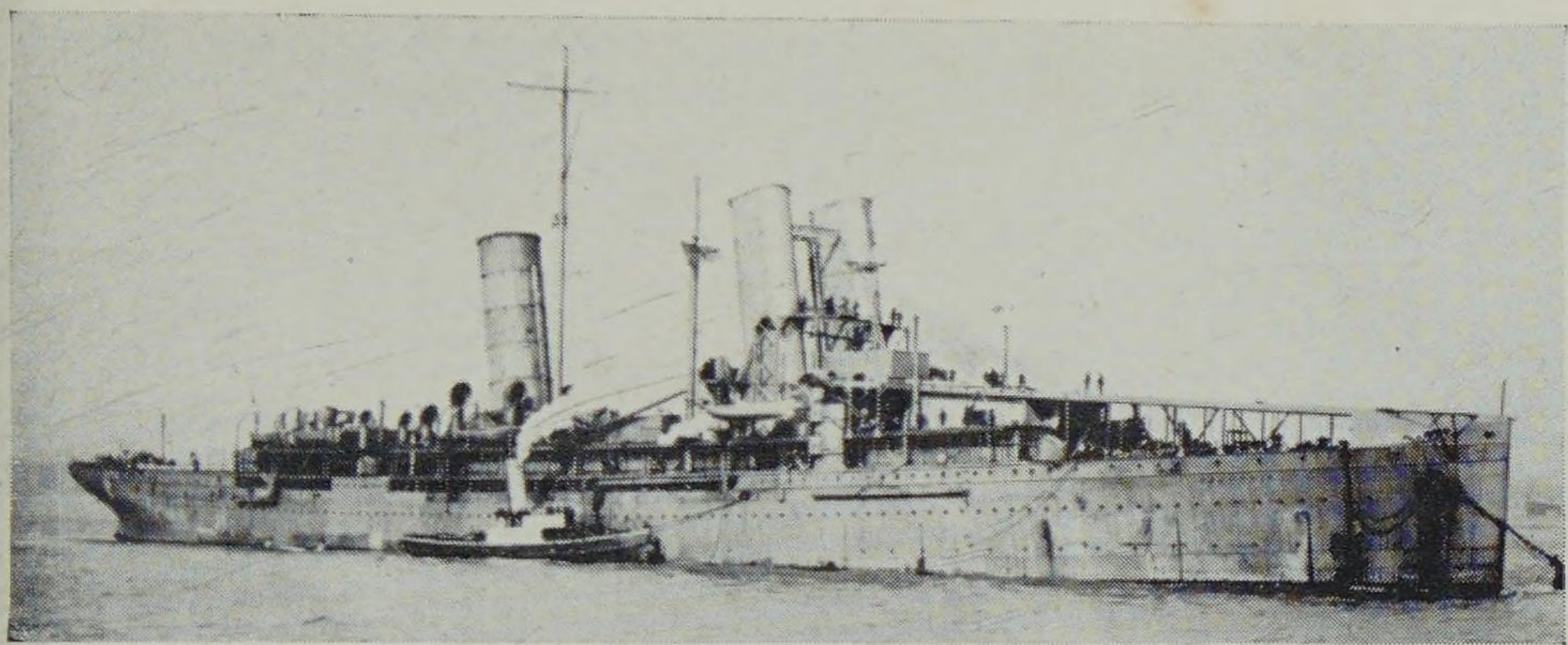
Length: 605 ft. *Beam:* 65 ft. *Displacement:* 9,750 tons.
Geared turbines. 4 screws. 60,000 h.p. 29 knots.
Guns: 4—7.5 in., 4—3 in. A.A., 4—12 pdr. *Planes:* 6.
Protection: belt 2-3 in., deck 1 in., bulges. *Complement:* 730.

Laid down as the cruiser *Cavendish*, she was not completed until the end of the war and was re-converted to a cruiser in 1923-5.

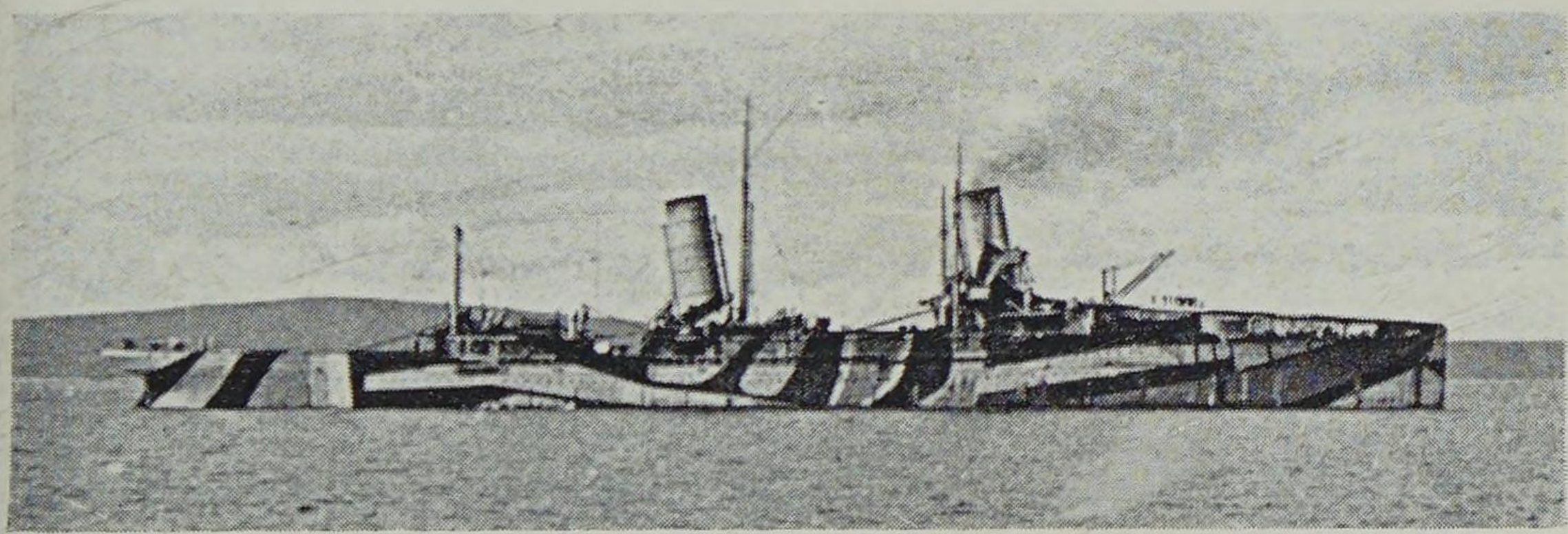
H.M.S. ARGUS

Length: 565 ft. *Beam:* 68 ft. *Displacement:* 15,775 tons.
Turbines. 4 screws. 22,000 h.p. 20.5 knots.
Guns: 6—4 in. A.A. *Planes:* 20. *Complement:* 495.

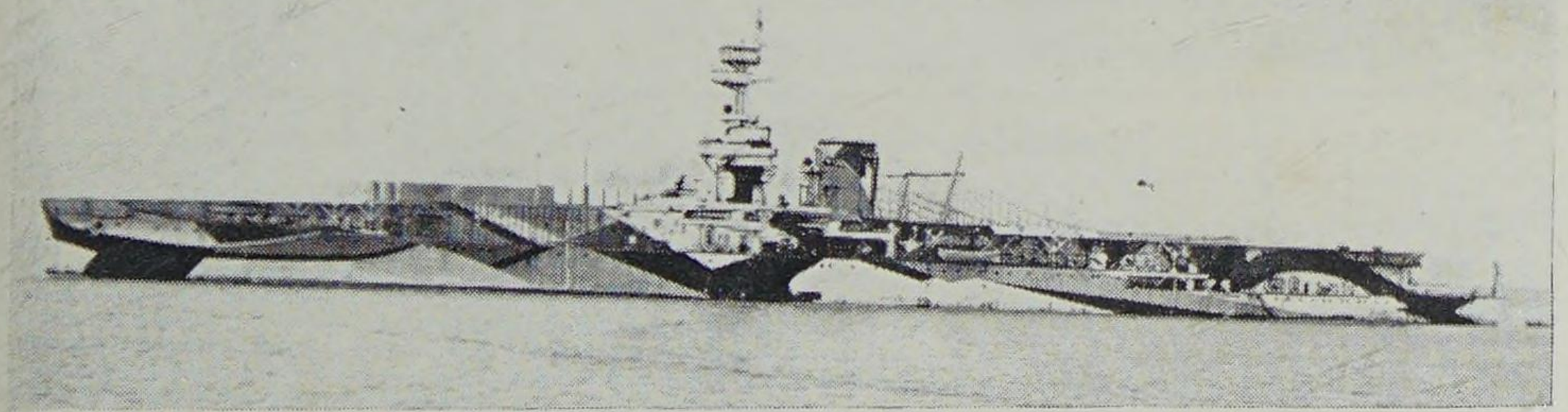
Laid down as the liner *Conte Rosso* for Italy, she was completed as a carrier with complete flying deck in Sept. 1918. She served in World War II and was scrapped in 1947.



H.M.S. *Campania*, aircraft carrier, with divided fore funnel. [*I.W.M.*



H.M.S. *Campania*, aircraft carrier, dazzle-painted. [*I.W.M.*



H.M.S. *Furious*, aircraft carrier, fully converted. [*N.P.C.*

There was also an experimental aircraft catapult ship, H.M.S. *Slinger*, Altered from a dredger she had a raised runway from which planes could be projected.

Monitors

After the outbreak of war in 1914, it became evident that ships of the old monitor or coast defence type could be effectively used for bombardment of enemy shore positions. In this service they were used off the Flanders coast, in the Dardanelles, Eastern Mediterranean and the Adriatic. Building in Britain were three light monitors for Brazil and two coast defence ships for Norway, all of which were taken over. For new construction such vessels could be built in a few months, but providing heavy guns for them was another matter.

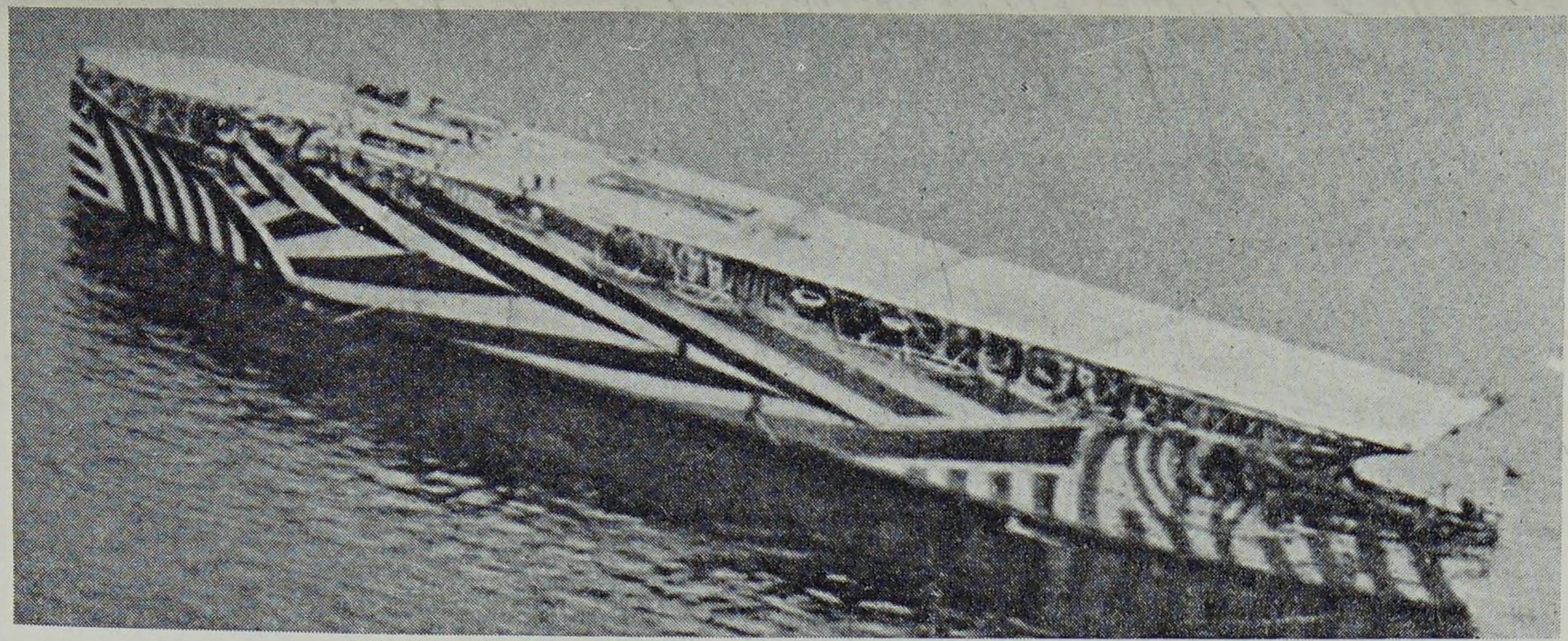
The Greek battle cruiser *Salamis* was being built in Germany with 8—14 in. guns which were to be supplied from the U.S.A. These guns were acquired for the four ships of the *Abercrombie* class. Eight ships of the *Lord Clive* class were given 12 in. guns from four *Majestic* class pre-Dreadnoughts (see Part 1). These old guns were not too effective and four more ships were put in hand to mount such 15 in. guns as could be spared: the two " Marshals " were diesel driven whilst the much larger *Erebus* and *Terror* had steam engines. In the smaller range, 19 ships (M15-M33) were built to mount 9.2 in., 7.5 in. and 6 in. guns from old cruisers. Their numbers began at M15 as it was originally intended to include all monitors in the M series. Three 18 in. guns (two from H.M.S. *Furious* and one spare), were in mid-1918 mounted on three of the *Lord Clive* class in addition to their 12 in. guns. Eventually these 18 in. guns were mounted at Singapore.

EX-BRAZILIAN RIVER MONITORS

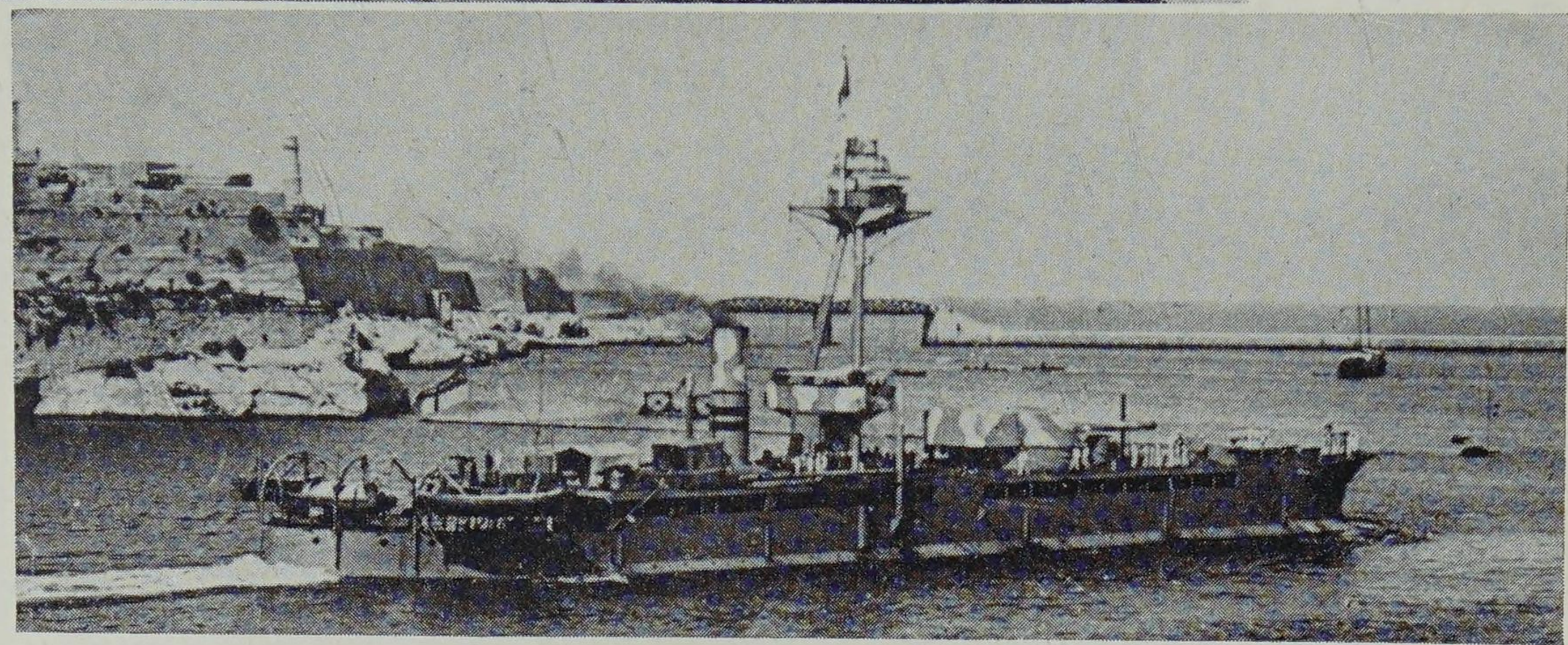
Length: 266¾ ft. *Beam:* 49 ft. *Displacement:* 1,260 tons.
Triple expansion. 2 screws. 1,450 h.p. 10-12 knots.
Guns: 3—6 in., 2—4.7 howitzers and smaller.
Protection: belt 2 in. *Complement:* c.100.

Name	*Completed*	
Humber	1914	1920 Sold.
Mersey	1914	1921 Sold.
Severn	1914	1921 Sold.

Mersey and *Severn* destroyed the *Koenigsberg*, blockaded in the Rufiji Estuary, in July 1915, when shooting was corrected from observations by a naval aircraft—an early example of such co-operation.



H. M. S. *Argus*, aircraft carrier.



H.M.S. *Raglan*, monitor. Note partial camouflage. [*I.W.M.*

EX-NORWEGIAN COAST DEFENCE SHIPS

Length: 310 ft. *Beam:* 73⅔ ft. *Displacement:* 5,700 tons.
Triple expansion. 2 screws. 4,000 h.p. 13 knots.
Guns: 2—9.2 in., 6—6 in., 2—3 in. A.A. and smaller.
Protection: deck 2 in., bulges. *Complement:* 303.

Name	Completed	
Glatton	1918	1918 Caught fire and sunk in Dover Harbour.
Gorgon	1918	1928 Sold.

Construction of these ships was put on low priority when other monitors came into service. *Glatton* was sunk to avoid possible explosion.

ABERCROMBIE CLASS

Length: 344½ ft. *Beam:* 90 ft. *Displacement:* 6,150 tons.
Triple expansion. 2 screws. 2,000 h.p. 6-8 knots.
Guns: 2—14 in., 1 to 4—6 in., nil to 2—3 in. A.A., 2—12 pdr. and smaller.
Protection, etc., as for " Lord Clive " class.

Name	Completed	
Abercrombie	1915	1921 Sold, 1927 scrapped.
Havelock	1915	1921 Sold, 1927 scrapped.
Raglan	1915	1918 Sunk by *Goeben* off Imbros.
Roberts	1915	1921 Sold, 1936 scrapped.

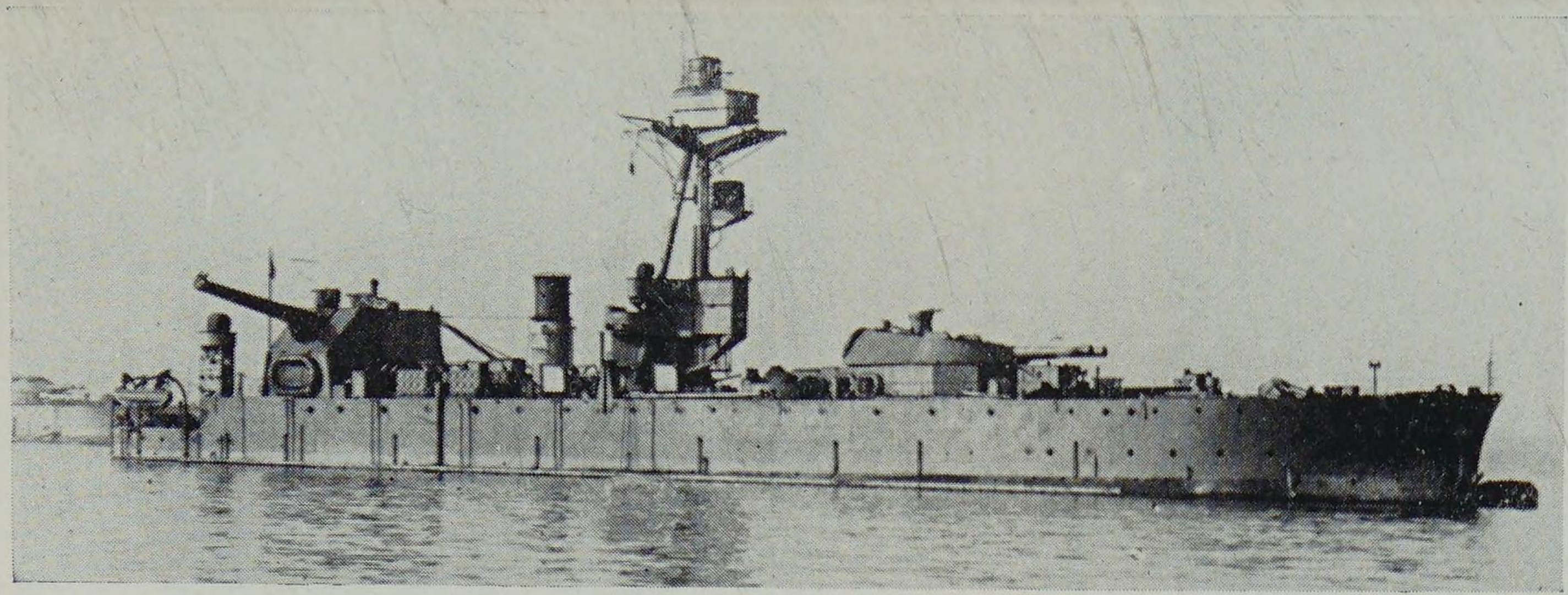
During construction these ships were listed as M1-M4, later being named after leaders in the American Civil War and were finally given names of the British Generals above.

LORD CLIVE CLASS

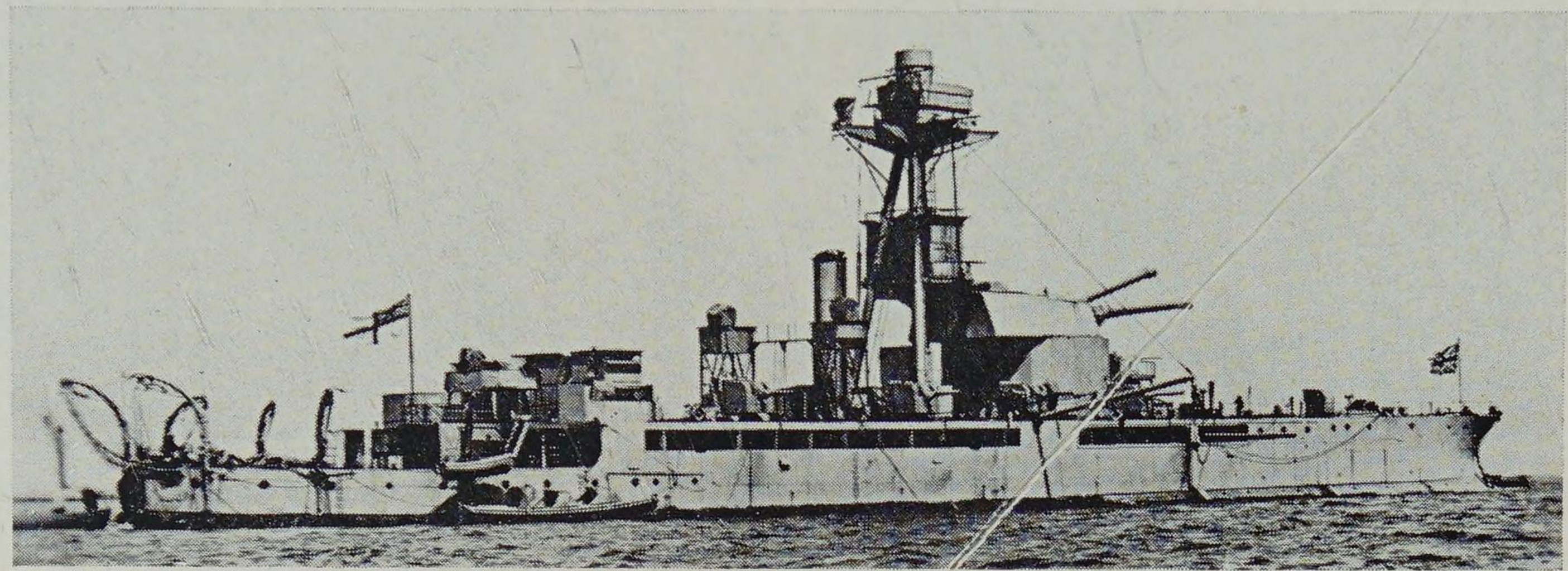
Length: 335½ ft. *Beam:* 87¼ ft. *Displacement:* 5,900 tons.
Triple expansion. 2 screws. 2,300-2,500 h.p. 6-8 knots.
Guns:* 2—12 in., 1 to 4—6 in., 2—3 in. A.A. and smaller
*1—18 in. added to *General Wolfe*, *Lord Clive* and *Prince Eugene* in mid-1918.
Protection: deck 1½ in., bulges. *Complement:* 237.

Name	Completed	
Earl of Peterborough	1915	1921 Sold.
General Craufurd	1915	1921 Sold.
General Wolfe	1915	1921 Sold.
Lord Clive	1915	1927 Sold.
Prince Eugene	1915	1921 Sold.
Prince Rupert	1915	1923 Sold.
Sir John Moore	1915	1921 Sold.
Sir Thomas Picton	1915	1921 Sold.

Lord Clive later had an experimental triple 15 in. turret in place of the single 18in.



H.M.S. *Lord Clive*, with additional 18 in. gun.
[*I.W.M.*



H.M.S. *Marshal Soult*, monitor.
[*N.P.C.*

MARSHAL CLASS

Length: 355⅔ ft. *Beam:* 90¼ ft. *Displacement:* 6,670 tons.
Diesel engines. 4 screws. 1,500 h.p. 5-7 knots.
Guns: 2—15 in., 8—4 in., 2—3 in. A.A., 2—12 pdr.
Protection: deck 1 to 3 in., bulges. *Complement:* 228.

Name	Completed	
Marshal Ney	1915	1917 Guardship. 1919 Hulk.
Marshal Soult	1915	1946 Scrapped.

Marshal Ney had her 15 in. guns removed in 1917 and was re-armed with 6 in. and smaller to become guardship in the Downs.

EREBUS CLASS

Length: 405 ft. *Beam:* 88 ft. *Displacement:* 8,000 tons.
Triple expansion. 2 screws. 7,000 h.p. 12-14 knots.
Guns: 2—15 in., 8—4 in., 2—3 in. A.A., 2—12 pdr.
Protection: decks 1-4 in., bulges. *Complement:* 223.

Name	Completed	
Erebus	1916	1946 Scrapped.
Terror	1916	1941 Sunk by aircraft off Libya.

Sister ship: 1 cancelled in 1918.

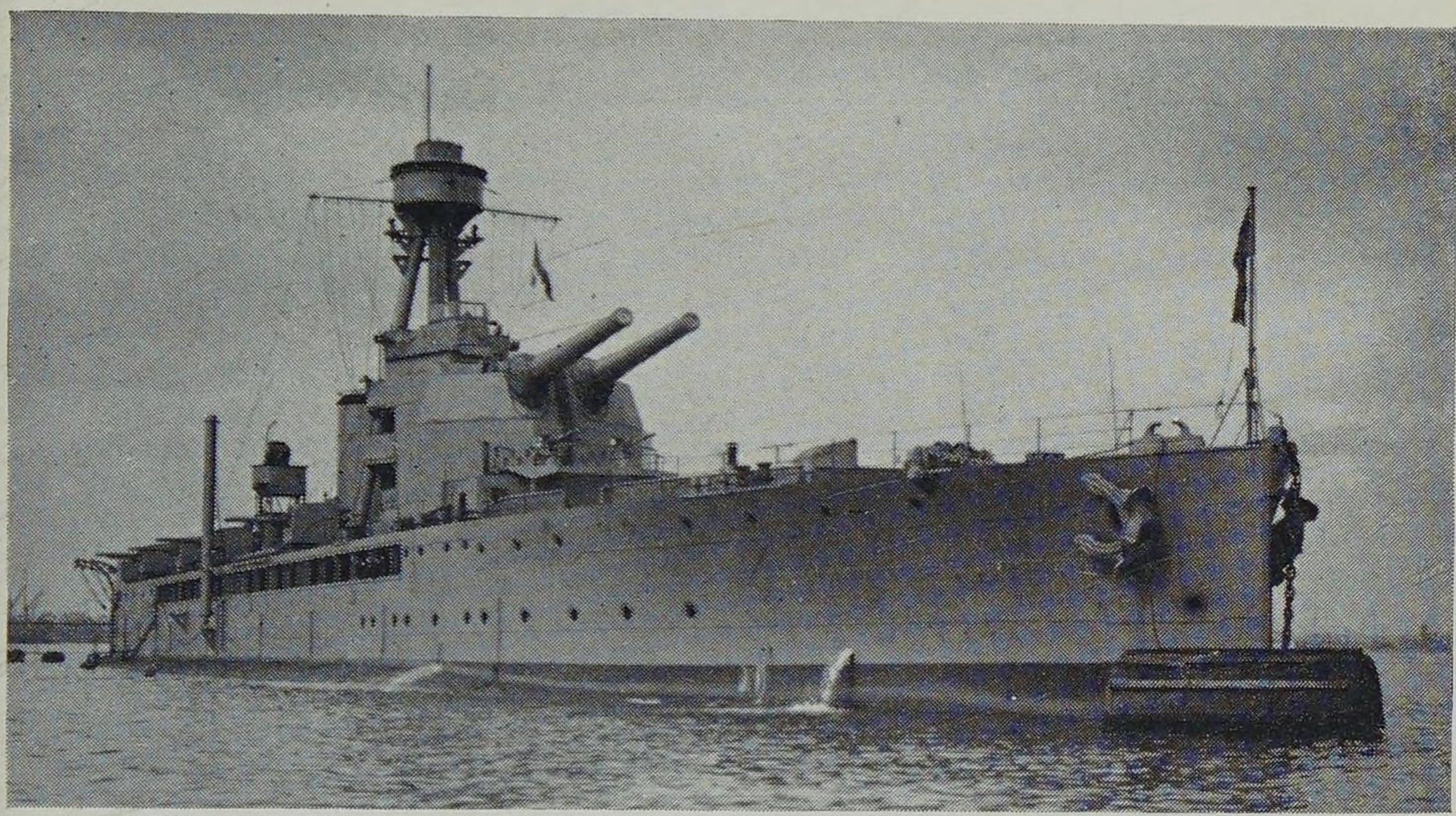
M15 CLASS

Length: 177 ft. *Beam:* 31 ft. *Displacement:* 540 tons.
Triple expansion. 2 screws. 600-800 h.p. 12 knots.
Guns: 1—9.2 in., 1—3 in. A.A. *Complement:* 67-82.

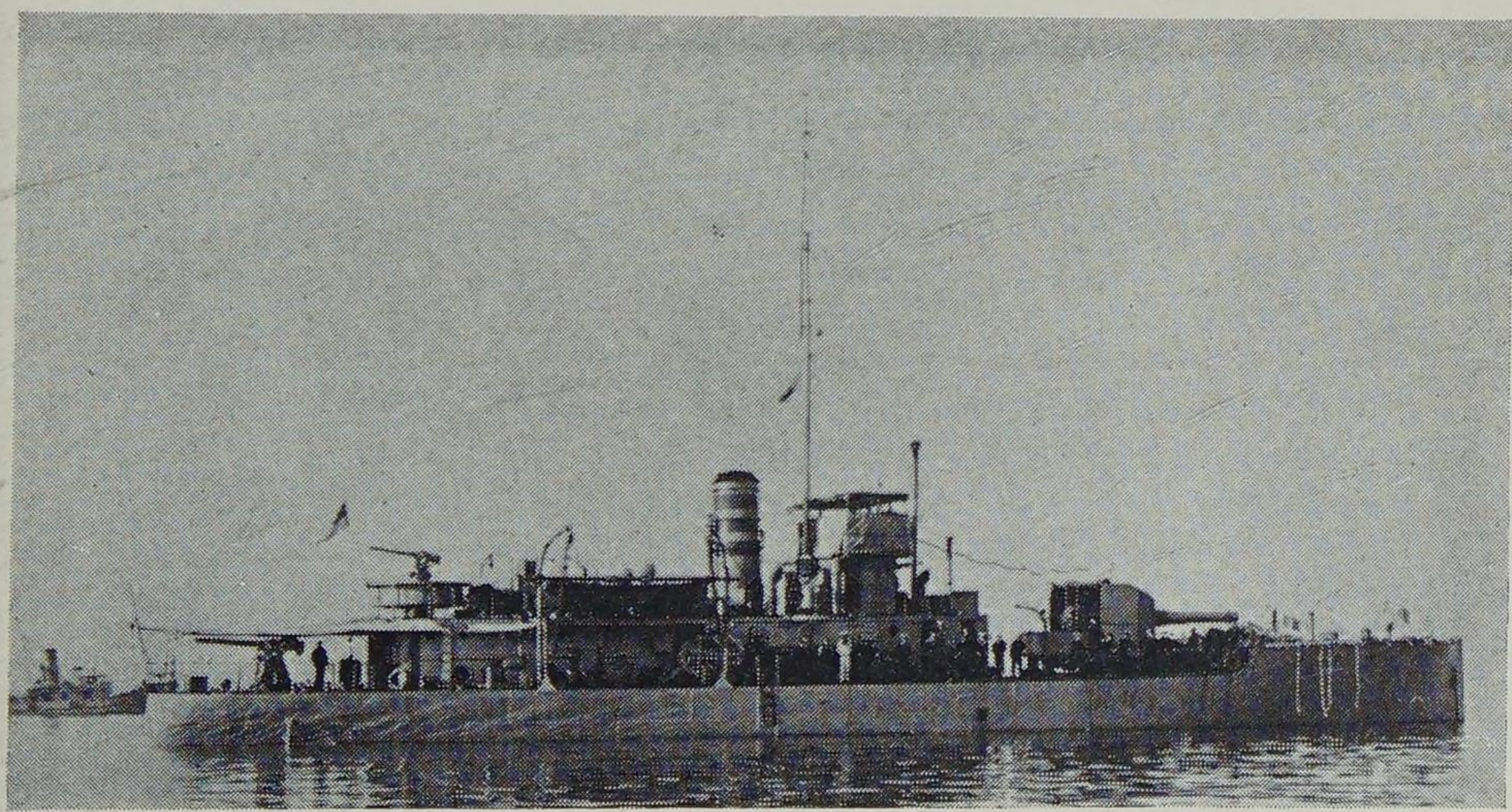
Name	Completed	
M15	1915	1917 Torpedoed by U-boat off Gaza.
M16	1915	1920 Sold for oil storage.
M17	1915	1920 Sold.
M18	1915	1920 Sold for oil storage.

Although projected as one class, other ships varied as follows:—M19, 20, 23-28 had diesel engines, M24, 26, 27 with 4 screws. M23-28 had 1—7.5 in. or 6 in. or 4.7 in. gun in place of the 9.2 in. and the lesser armament also varied.

M19	1915	1920 Sold.
M20	1915	1920 Sold for oil storage.
M21	1915	1918 Mined off Ostend.
M22	1915	1925 Minelaying training ship *Medea*.
M23	1915	1922 R.N.V.R. drillship *Claverhouse*.
M24	1915	1920 Sold for oil storage.
M25	1915	1919 Lost on Dvina river, N. Russia.
M26	1915	1920 Sold for oil storage.
M27	1915	1919 Lost on Dvina river, N. Russia.
M28	1915	1918 Sunk by *Goeben* off Imbros.



H.M.S. *Terror*, monitor. [*Cozens*



H.M. *Monitor* M22. [*N.P.C*

M29 CLASS

As M15 but 400 h.p., 10 knots, *guns:* 2—6 in., 1—3 in. A.A. or 1—6 pdr. A.A.

Name	Completed	
M29	1915	1925 Minelaying training ship *Medusa*.
M30	1915	1916 Sunk by Turkish batteries, Gulf of Smyrna.
M31	1915	1925 Minelaying training ship *Melpomene*.
M32	1915	1920 Sold for oil storage.
M33	1915	1925 Minelaying training ship *Minerva*.

Depot Ships

Flotillas of smaller ships—destroyers, submarines, minesweepers, etc.—whose base of operations may be changed at short notice, require mobile depots with stores, spare parts, recreation facilities and so on. Minor requirements also can be much more quickly met by coming alongside a ship than by entering port. Such vessels were of three kinds: (a) old warships converted (usually cruisers), (b) converted merchant ships and (c) specially-built ships.

The three most important categories were (1) Destroyer (or Torpedo) Depot Ships, (2) Submarine Depot Ships, and (3) Fleet Repair Ships. The last were floating workshops, capable of carrying out quite heavy running repairs to machinery, gun mechanisms and equipment of all kinds.

(1) DESTROYER DEPOT SHIPS

(*a*) The old cruisers *Blake*, *Blenheim*, *Dido*, *Leander*, *St. George* and possibly others for short period. *St. George* was later a submarine depot ship.

(*b*) **Diligence.** ex S.S. *Tabaristan*, bought 1913 and sold in 1926.
7,400 tons. 5,000 h.p. 14 knots. *Guns:* 4—4 in.

Greenwich. Bought 1915, and sold 1947.
8,584 tons. 2,000 h.p. 11 knots. *Guns:* 4—4 in. and smaller.

Hecla. ex S.S. *British Crown*, bought 1878 and sold in 1926.
5,600 tons. 2,400 h.p. 13.4 knots. *Guns:* 4—4 in.

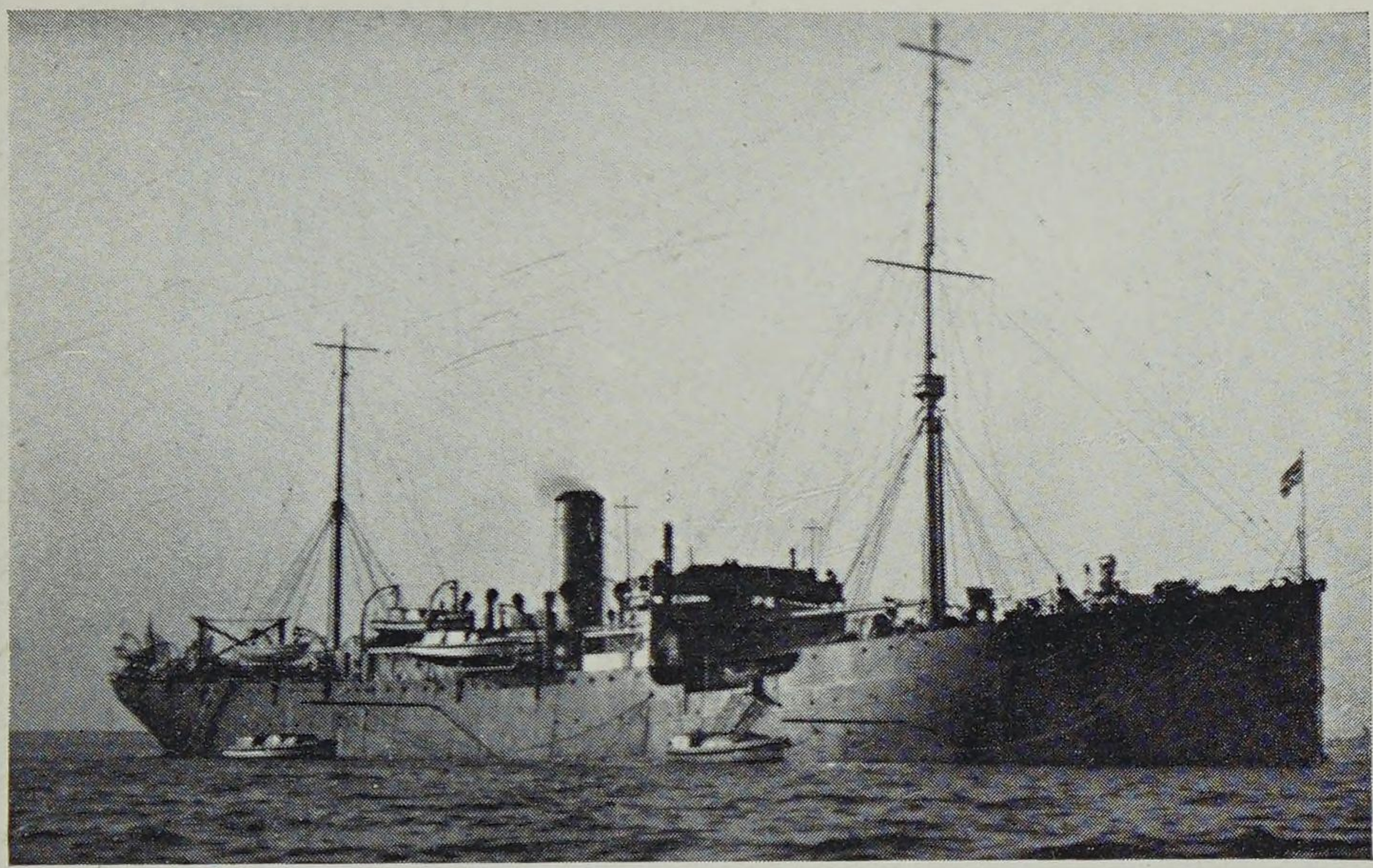
Sandhurst. ex S.S. *Manipur*, bought 1915, and sold 1946.
11,500 tons. 4,000 h.p. 10.5 knots. *Guns:* 4—4 in. and smaller.

Tyne. ex R.M.S.P. Co., bought 1878, sold 1920 and foundered in a gale.
3,590 tons. 1,200 h.p. 11.7 knots. *Guns:* 1—12 pdr. and smaller.

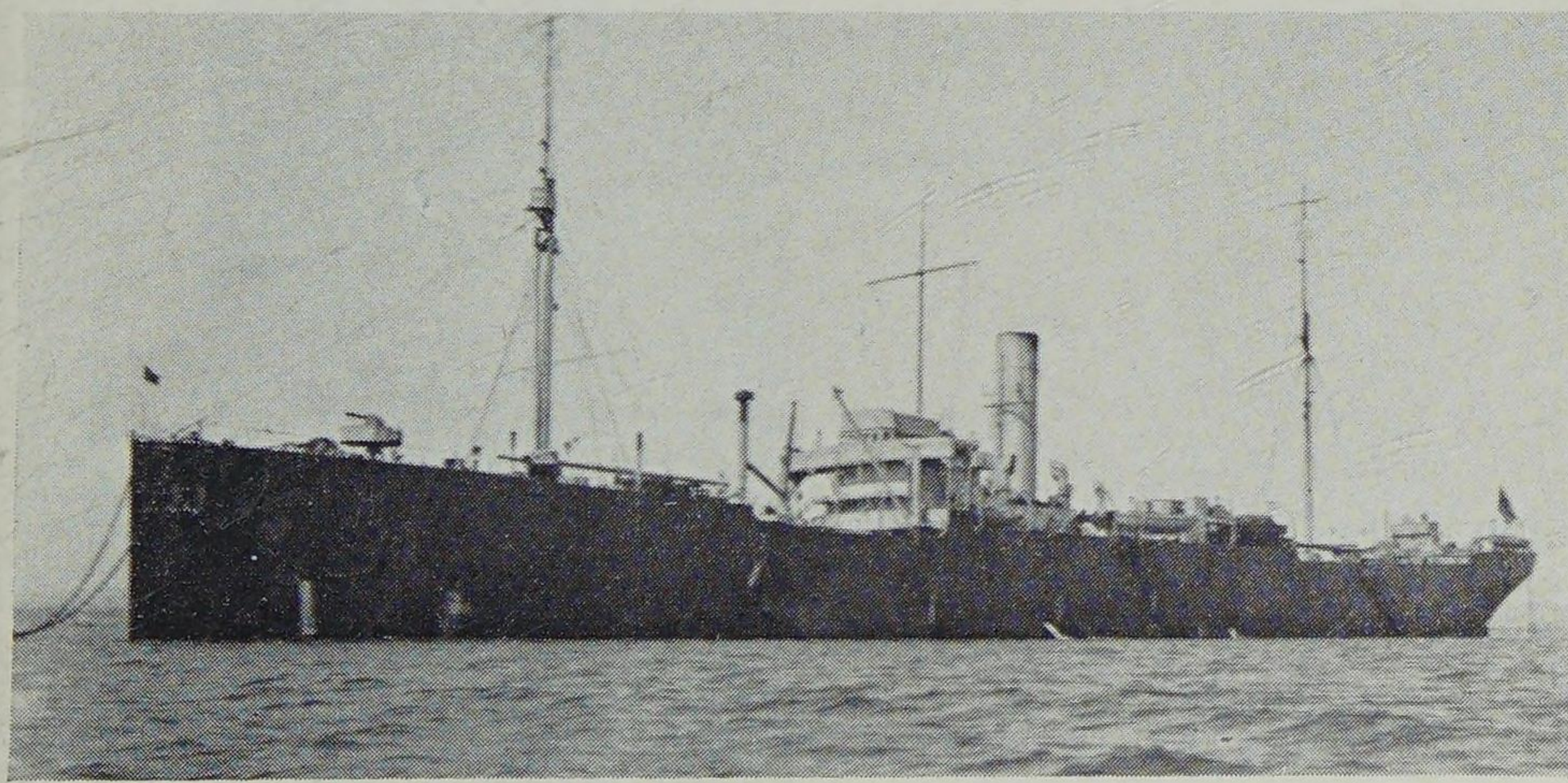
(*c*) **Woolwich.** Built in 1912 and sold in 1926.
3,380 tons. 2,600 h.p. 13.5 knots. *Guns:* 2—4 in.

(2) SUBMARINE DEPOT SHIPS

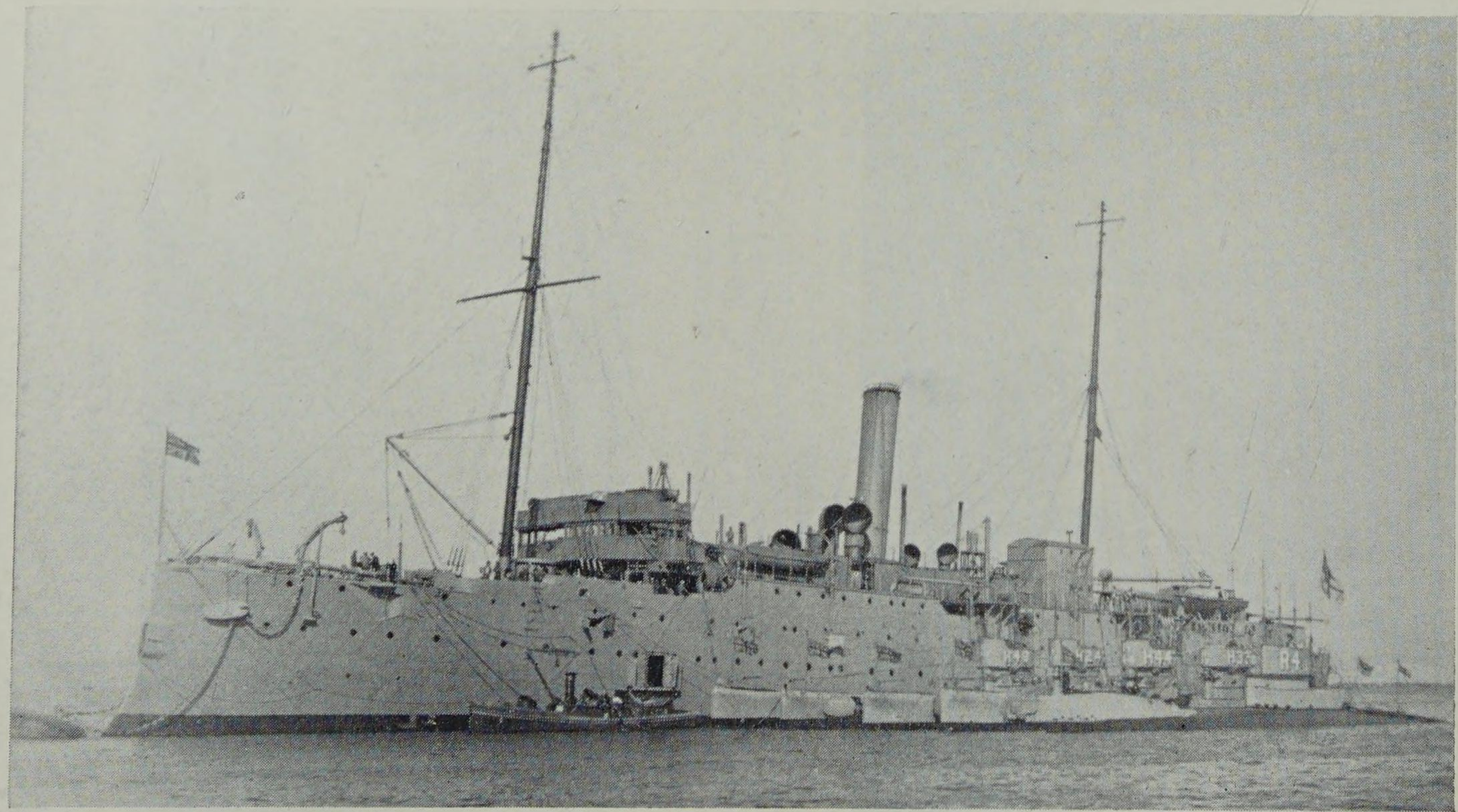
(*a*) The old cruisers *Arrogant*, *Bonaventure*, *Forth*, *Pactolus*, *Royal Arthur*, *Thames*, *Vulcan* and later, *St. George*. Also the ex-torpedo gunboats, *Hazard* (sunk in collision in 1918), and *Onyx* (Later *Vulcan II*, sold 1924).



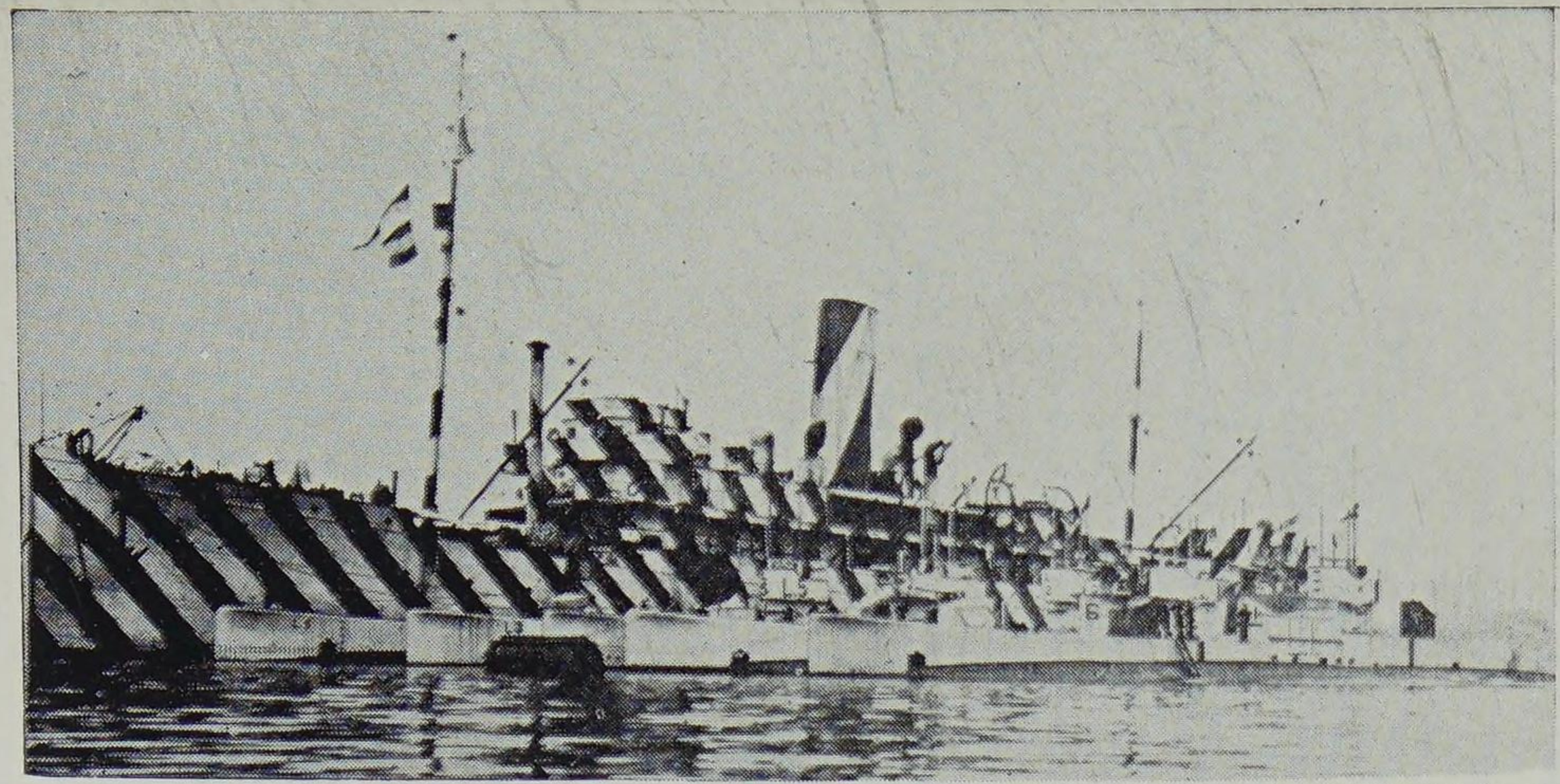
H.M.S. *Greenwich*, destroyer depot ship. [*Seward*



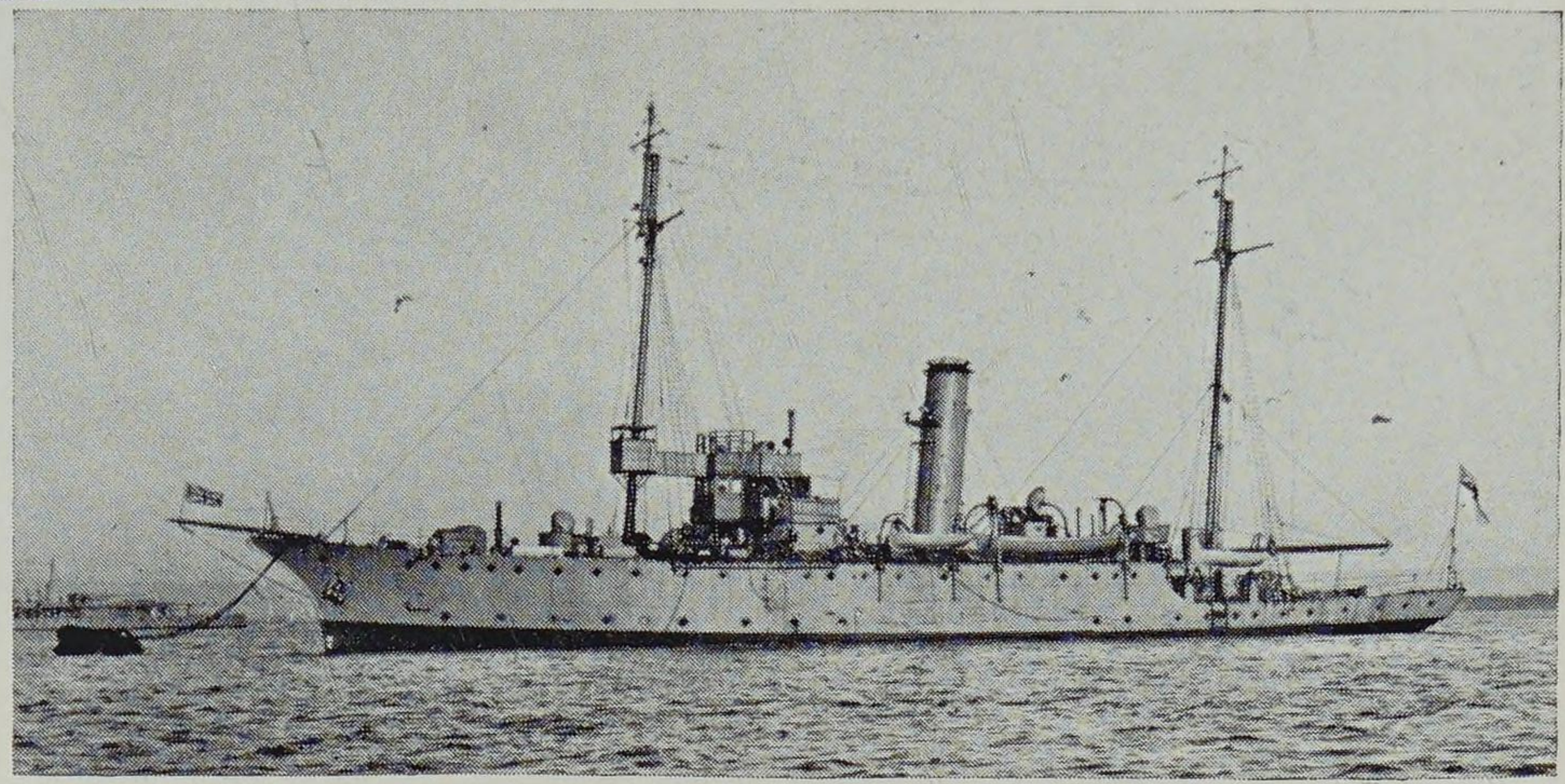
H.M.S. *Sandhurst*, destroyer depot ship. [*Seward*



H.M.S. *Vulcan*, submarine depot ship. [*Seward*



H.M.S. *Ambrose*, submarine depot ship. [*N.P.C.*



H.M.S. *Adamant*, submarine depot ship.

(*b*) **Ambrose.** ex Booth Line, bought 1915 and sold 1948.
6,480 tons. 6,350 h.p. 14.5 knots. *Guns:* 2—12 pdr.
Lucia. ex German S.S. *Spreewald*, converted 1916 and sold 1948.
5,805 tons. 2,750 h.p. 12.7 knots. *Guns:* 2 small.
Pandora. ex Russian S.S. *Seti*, bought 1914 and sold 1938.
4,590 tons. 2,200 h.p. 11 knots. No guns.
Titania.
5,250 tons. 3,200 h.p. 14.5 knots. No guns.

(*c*) **Adamant**
935 tons. 1,400 h.p. 14 knots. *Guns:* 1—4 in. or nil.
Alecto
Built in 1911 and sold in 1932 and 1947 respectively.
Maidstone. Built in 1912 and sold in 1929.
3,600 tons. 2,800 h.p. 14.3 knots. No guns.

(3) FLEET REPAIR SHIPS

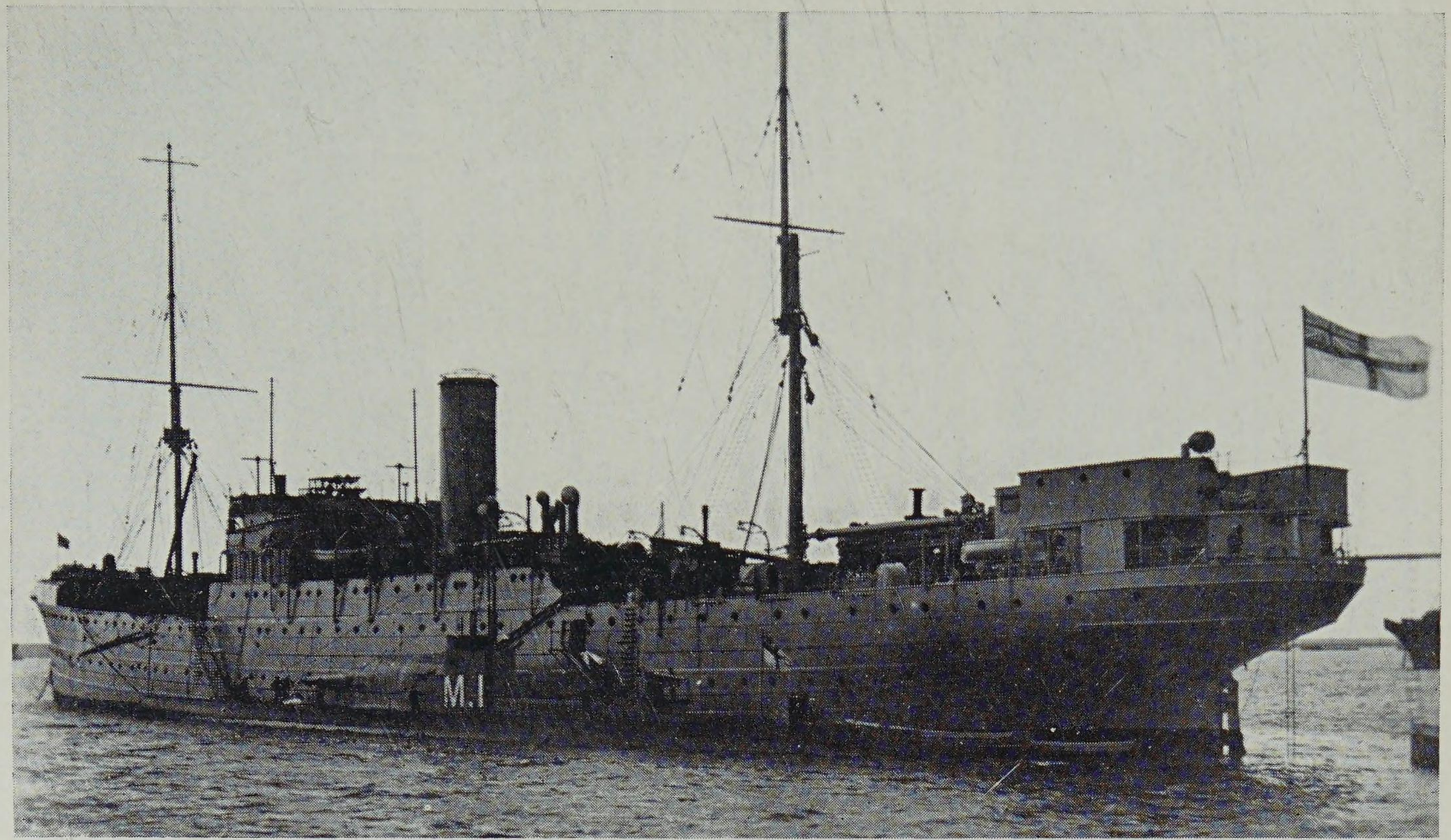
(*b*) **Aquarius.** ex S.S. *Hampstead*, bought 1902 and sold to Spain in 1920.
2,800 tons. 1,100 h.p. 10.5 knots. No guns.
Assistance. Bought whilst building in 1900 and sold in 1937.
9,600 tons. 4,200 h.p. 13 knots. *Guns:* 10—3 pdr.
Bacchus. Bought 1915 and sold 1937.
3,500 tons.
Cyclops. ex S.S. *Indiabarrah*, bought 1905, 1922 Submarine depot ship, 1947 scrapped.
11,300 tons. 3,500 h.p. 11.75 knots. *Guns:* 6—4 in.
Reliance. ex S.S. *Knight Companion*, bought 1913 and sold 1919.
3,250 tons. 3.250 h.p. 11 knots. No guns.

Note: Other depot ships were *Hermione* (old cruiser), for coastal craft; *Gibraltar* (old cruiser), for the anti-submarine school; and *Scotstoun*, specially adapted as a repair ship for river gunboats.

Minelayers

The pre-war conception of minelaying as a slow process was soon dispelled, high speed being necessary to reach the mining location, lay mines during darkness and get clear before daylight. The use of old warships and slow merchant ships was therefore limited, most of the minelaying being performed by destroyers, fast new light cruisers and submarines of the "E" and "L" classes. There were however two very suitable merchant ships of the "Princess" group, large fast ships designed for the West coast services of the Canadian Pacific Rly. These were taken over in 1914, details being:—

Length: 395½ ft. *Beam:* 54 ft. *Displacement:* 5,070 tons.
Turbines. 2 screws. 15,000 h.p. 23 knots.
Guns: 2—4 in. or 4.7 in., 2—3 in. A.A. and smaller. *Mines:* 400.
Complement: 225.



H.M.S. *Cyclops*, Fleet repair ship, with submarine M.I alongside. [*Seward*

MINELAYERS

Name	Completed	
Princess Irene	1914	1915 Blew up at Sheerness.
Princess Margaret	1915	1929 Sold.

Other and more temporary minelayers of the fast cross-channel or short sea type were the *Biarritz* (2,053 tons, 1915, S.E. & C. Rly.), *Paris* (1,774 tons, 1913, L.B. & S.C. Rly.) and *Wahine* (4,436 tons, 1913, Union S.S. Co. of New Zealand—see p. 27). Other converted merchant ships were used where high speed was not essential.

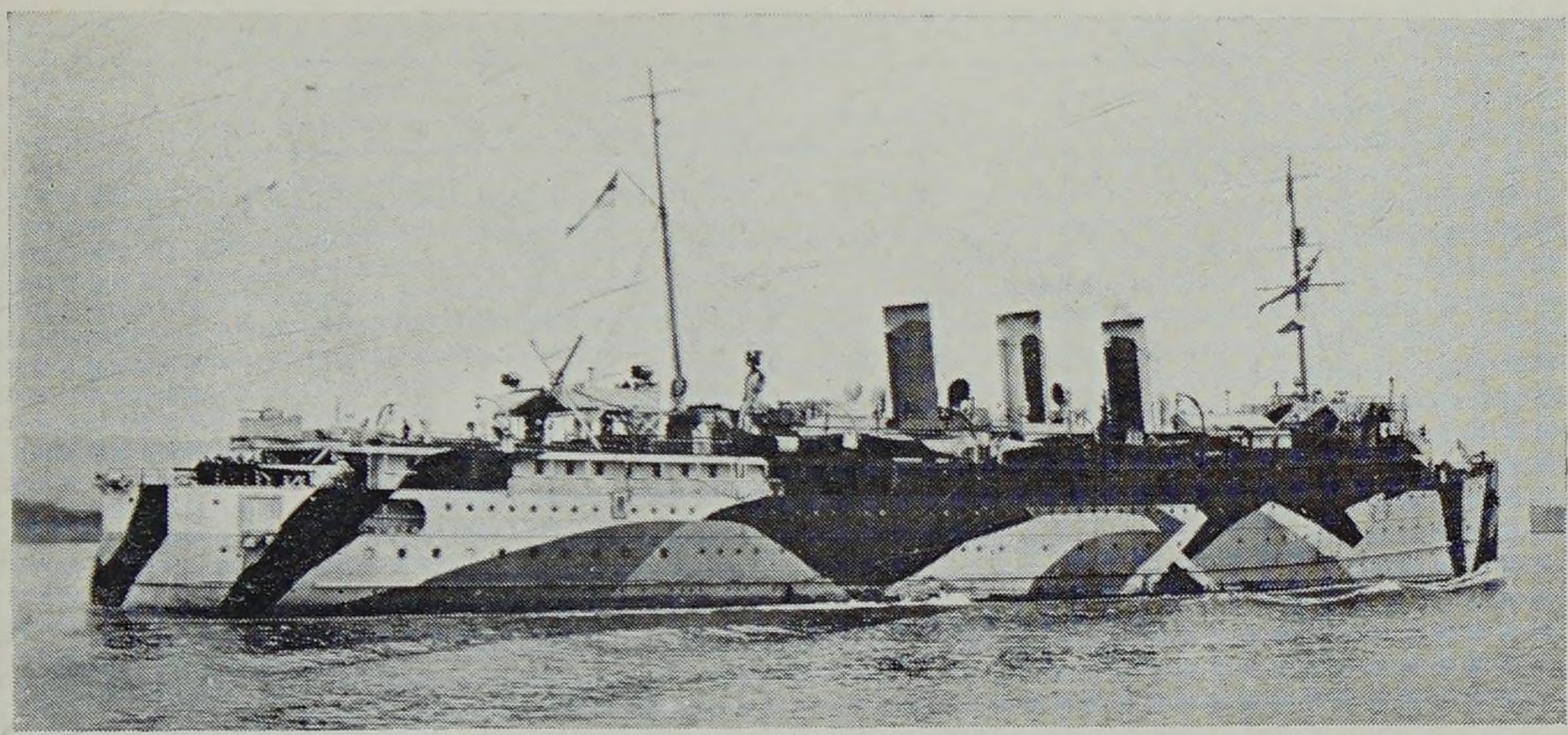
Armed Merchant Cruisers (A.M.C's.)

Since the 1880's some of the fastest ships of the big shipping lines had been earmarked as auxiliary cruisers in time of war, whilst others, not so fast, were designed with a view to rapid conversion to troopships or hospital ships. In 1914-18 many liners served as A.M.C's for various periods but to give details of all of them would be beyond the scope of this book. The writer has therefore only listed those which were *sunk as* A.M.C's, since the fate of many once well-known vessels may be of interest. Similar to A.M.C's were the slower Commissioned Escort Ships and the smaller Armed Boarding Vessels. They should not be confused with Defensively Armed Merchant Ships, the term applied to ships given anti-submarine armament.

In the early days of the German raiders A.M.C's were in great demand. Their chief concentration was in the 10th Cruiser Squadron patrolling between Scotland and Iceland, where twenty or more relieved naval cruisers. Actions between A.M.C's were rare but in Sept. 1914 an epic fight took place in the South Atlantic between H.M.S. *Carmania*, (19,524 tons, 1905, Cunard Line), and the *Cap Trafalgar* (18,710 tons, 1913, Hamburg South America Line). After a very hard fight the *Cap Trafalgar* was sunk. As the war progressed and U-boat warfare increased, many A.M.C's were diverted to other duties, the 10th Cruiser Squadron being paid off on the 7th December, 1917.

ARMED MERCHANT CRUISERS LOST

Name	Built	Gross tons	
Alcantara[1]	1913	15,831	1916 Torpedoed in action with raider *Greif*.
Avenger[2]	1915	15,000	1917 Torpedoed (U-boat) in N. Atlantic.
Bayano[3]	1913	5,948	1915 Torpedoed (U27) off Galloway.
Champagne[4]	1895	5,360	1917 Torpedoed (U-boat) in Atlantic.
Clan Macnaughton[5]	1911	4,985	1915 Foundered off N. Ireland.
Calgarian[6]	1914	17,515	1918 Torpedoed (U19) off N. Ireland.
Hilary[7]	1908	6,329	1917 Torpedoed (U-boat) in Atlantic.
India[8]	1896	7,940	1915 Torpedoed (U22) off Norway.
Laurentic[9]	1908	14,892	1917 Mined off N.W. Ireland.



H.M.S. *Princess Margaret*, minelayer. [N.P.C.

H.M.S. *Wahine*, minelayer. [I.W.M.

ARMED MERCHANT CRUISERS LOST

Name	Built	Gross tons	
Marmora[8]	1903	10,509	1918 Torpedoed (Uboat) off S. Ireland.
Moldavia[8]	1903	9,500	1918 Torpedoed (U-boat) in English Channel.
Oceanic[9]	1899	17,274	1914 Wrecked on Shetland Is.
Orama[10]	1911	12,927	1917 Torpedoed (U-boat) in Atlantic.
Otranto[10]	1909	12,124	1918 Wrecked on Islay after collision.
Otway[10]	1909	12,077	1917 Torpedoed (U-boat) off W. Scotland.
Patia[3]	1913	6,103	1918 Torpedoed (UC49) in Bristol Channel.
Viknor[11]	1888	5,386	1915 Mined off N. Ireland.

1 R.M.S.P. 2 Laid down for the Union S.S. Co. of New Zealand. 3 Elders & Fyffes. 4 ex *Oropesa* P.S.N.C. (lent to France). 5 Clan Line. 6 Allan Line (C.P.R.). 7 Booth Line. 8 P. & O. 9 White Star. 10 Orient. 11 ex *Viking*, Viking Cruising Co.

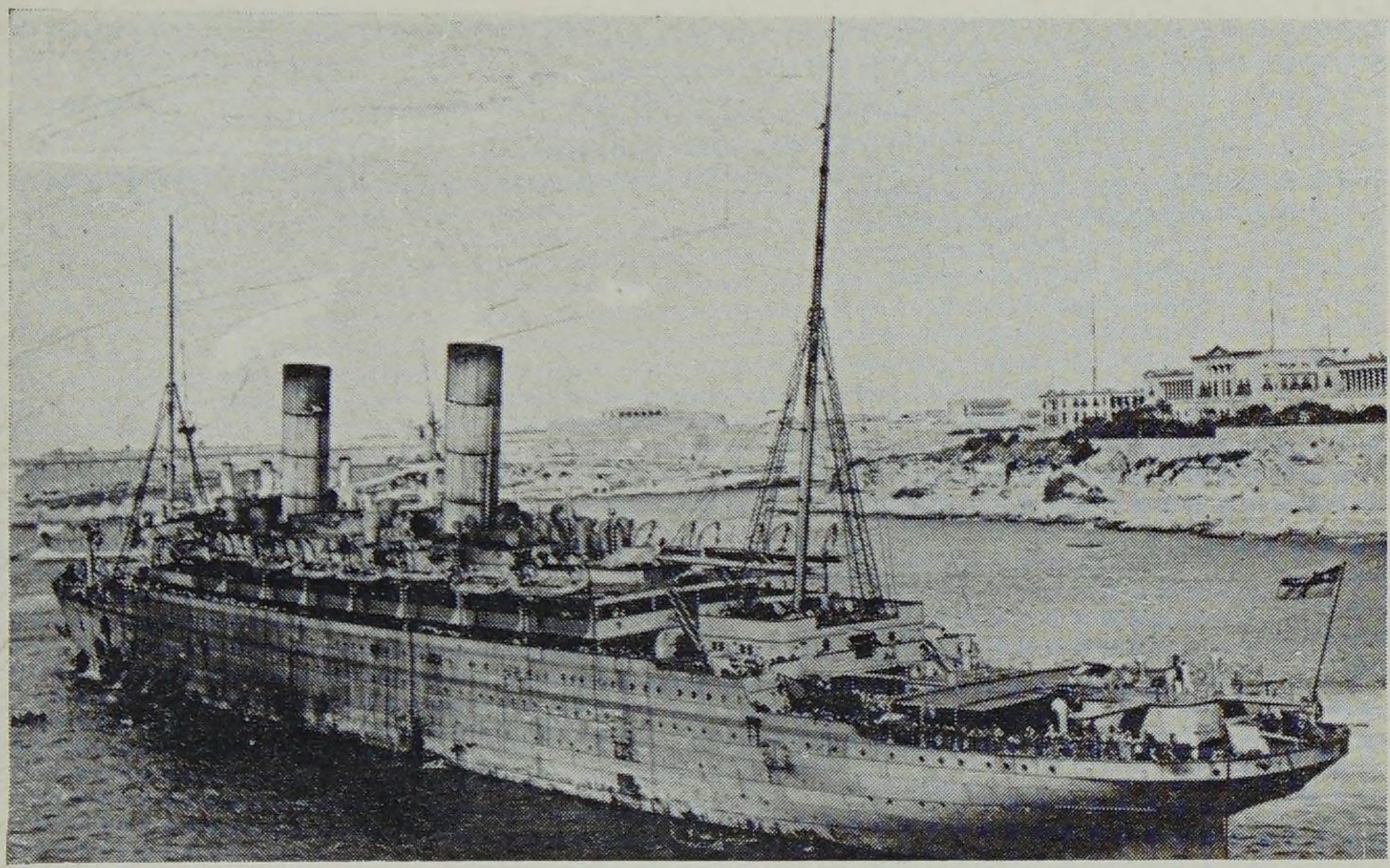
Q Ships (Decoy or Special Service Vessels)

The term " Mystery Ship " was loosely applied to various new classes of ship in World War I but it originally denoted a submarine decoy vessel. Our shipping was very vulnerable to attack by U-boats and means of trapping these were explored. U-boats were unlikely to waste torpedoes on small vessels such as coasters but would surface to sink them by gunfire. A small coaster, if provided with concealed armament, could then meet the U-boat on fairly equal terms. Such were the first Q-ships, the British *Victoria* and the French *Marguerite*, which went into service in November 1914.

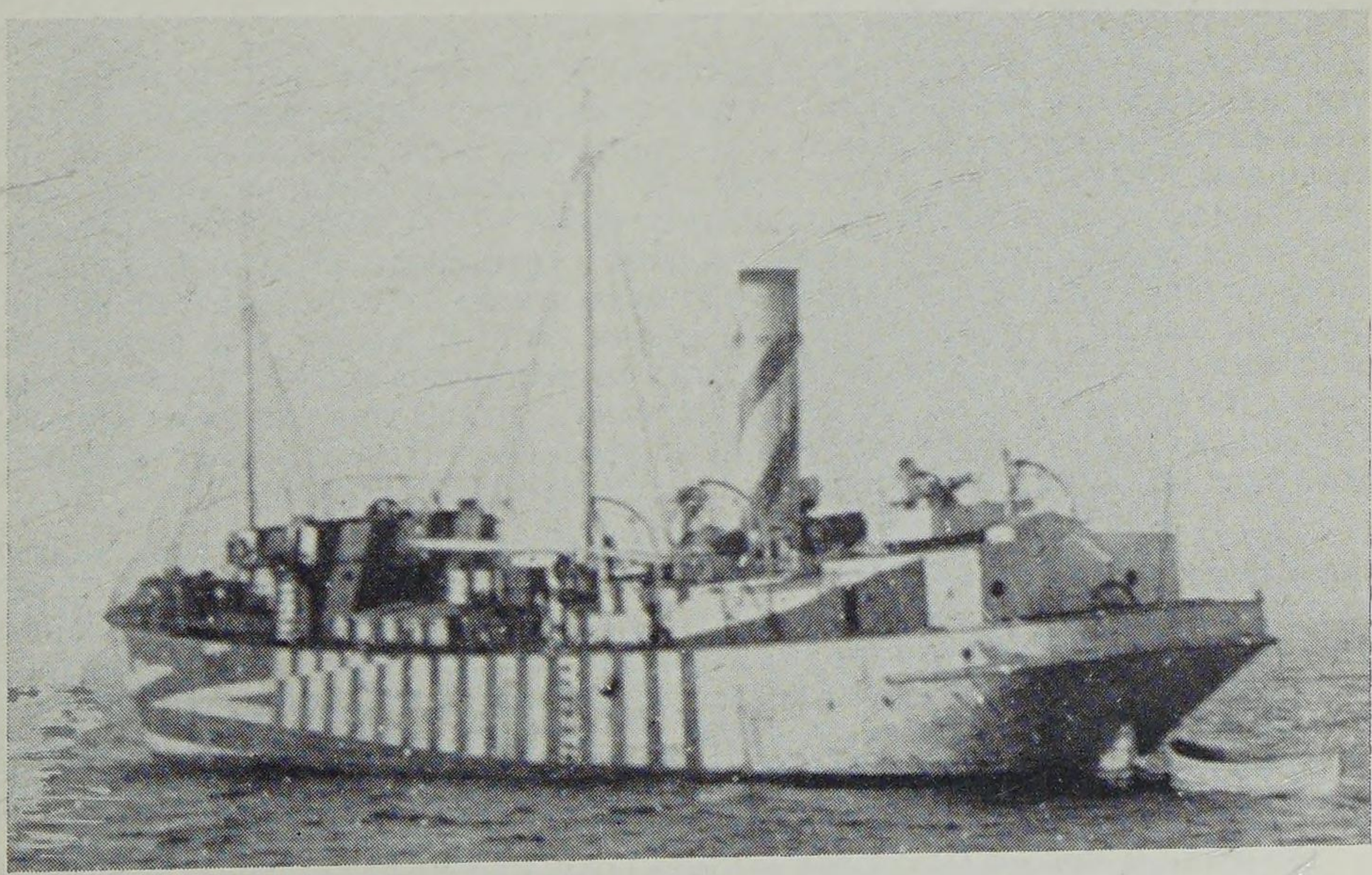
U-boats also caused great havoc amongst our trawlers and drifters—60 were sunk in June 1915 alone—and a trawler+submarine plan was adopted. A trawler put to sea towing one of the older submarines (submerged), and connected to it by telephone. If a U-boat surfaced the trawler engaged its attention whilst the submarine was released for attack. The first success of this scheme came in June 1915 when the trawler *Taranaki* with submarine C24 sank U40 off Aberdeen. Many of our older submarines of the A, B and C classes, assigned to coast defence with little to do, could thus be more usefully employed.

Almost exactly a month later the first purely Q-ship success was scored, when the *Prince Charles*—a converted coaster of 373 tons gross—sank U36. For some time both methods achieved considerable success and the enemy were alarmed by their mysterious submarine losses. Unfortunately there were not enough Q-ships in the early days and by the time they were plentiful the enemy had learnt the secret—a state of affairs all too frequent with our war measures. Also, whilst U-boats were blamed for torpedoing merchant ships without warning, the existence of Q-ships gave them an excuse to some extent.

Q-ships were converted from many types of vessel from 4,000-ton tramps to small sailing ships—there were even a tug and a lighter amongst them. As their outward appearance was indistinguishable from merchant ships illustrations have no significance and only one is shown (p. 29). One source lists 366 Q-ships,



H.M.S. *Carmania*, armed merchant cruiser. [*I.W.M.*



H.M.S. *Lothbury*, Q-ship. [*I.W.M.*

of which 61 were lost during the war, nearly all the larger vessels being torpedoed without warning. In addition there were 40 " Flower " class sloops and 20 PC-boats, specially-built warship variants to be described later. Q-ships usually sailed under an alias, often the designation of another decoy vessel including the " Flower-Q " names and PC-boat numbers. Others were known by numbers such as Q21 or 778.

The Development of Torpedo Craft

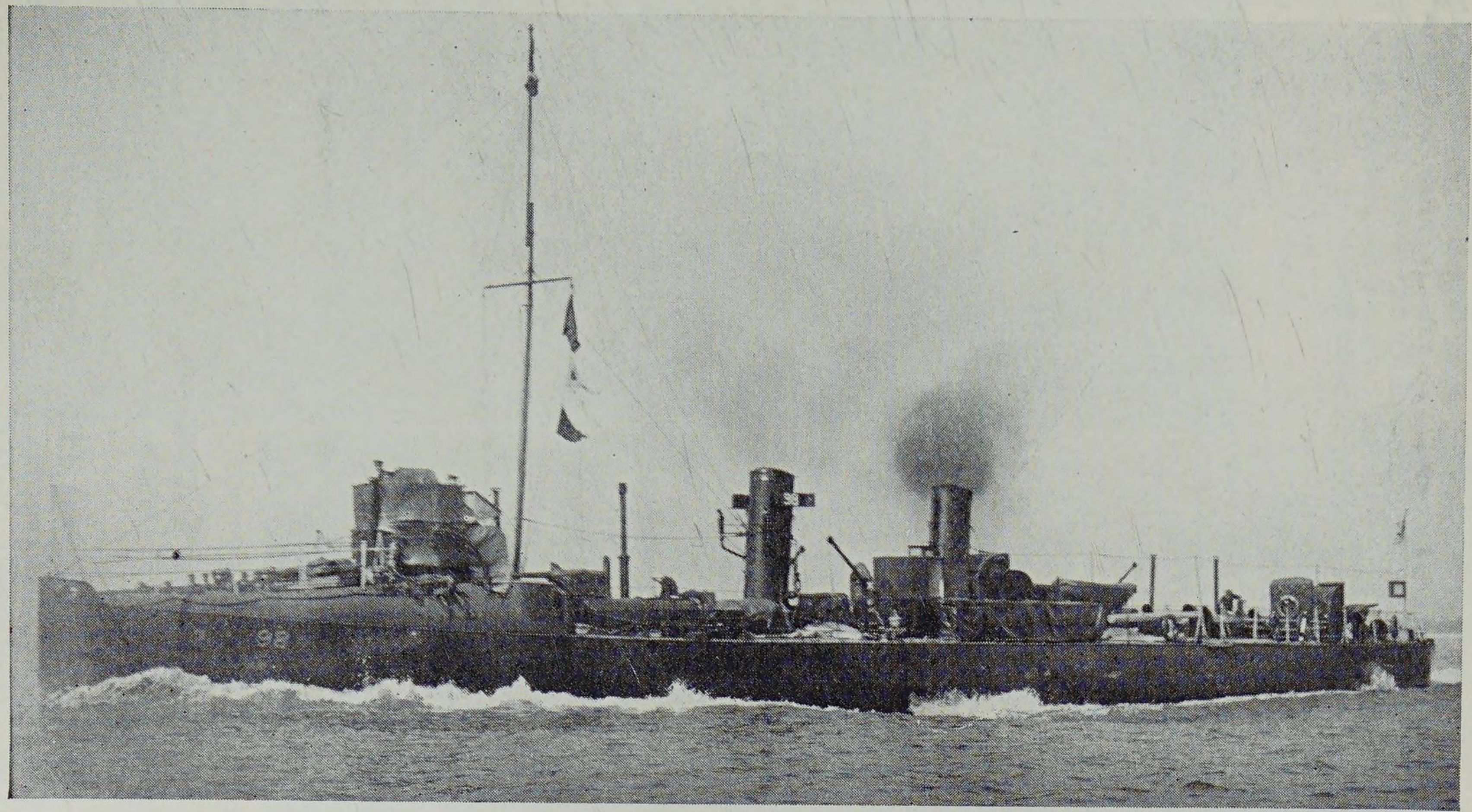
In World War I the torpedo ousted the gun as the most destructive weapon in naval warfare, whilst mines also took a very heavy toll. A brief historical note may therefore not be out of place.

Explosive shells, in place of solid shot, were first used—with devastating effect—at the Battle of Sinope (1853), and in the Crimean War (1854-5). Thereafter great progress was made in developing explosives which, for naval purposes, offered the greatest promise when used for mining. Mines however were static, and means of propelling them towards an enemy ship were sought. The best solution which emerged from many schemes, some weird and wonderful, was the torpedo and, of the various designs, the Whitehead " fish " type, driven by compressed air and discharged from a tube, eventually won the day. With a torpedo range of 600 yards, a small fast vessel could approach a warship, discharge a torpedo and escape with impunity. Construction of such torpedo boats began in the 1870's, raising great hopes among lesser Naval Powers, who saw therein an easy means of destroying powerful enemy fleets. It was also held that night attacks would be even more difficult to repel, to which end these vessels were painted black—a practice which lasted until 1916 on British and German torpedo craft.

The torpedo caused great alarm—comparable to some new weapons to-day—and stimulated the provision of counter measures on larger warships. Light quick-firing guns were developed and mounted in their superstructures or in casemates. Torpedo nets were added for protection when at anchor and searchlights for the detection of attackers by night. For a short period provision was made for the stowage of small 2nd class torpedo boats of 11 to 17 tons on large warships. Necessarily small, such boats would have been of little use in repelling attacks. In 1889 a torpedo cruiser, H.M.S. *Vulcan*, was completed with deck space for six or eight much larger torpedo boats and heavy goose-neck cranes for lifting them into or out of the water. In this ship can be recognised the germ of the aircraft carrier idea of 25 years later, H.M.S. *Vulcan* was later converted to a depot ship and served as such in 1914-18, (p.224).

A more practical measure was the provision of a new type of ship, which could accompany the fleet to sea and ward off attacking torpedo boats. The first of these were the Torpedo Gunboats or " Catchers ", 33 of which were built between 1886 and 1895. They proved disappointingly slow and quite unable to catch contemporary torpedo boats. (Survivors of this group, relegated to minesweeping, appear later in this Part.) The final answer was the Torpedo Boat Destroyer (T.B.D.), or Destroyer, which amounted to a much larger and faster Torpedo Boat (T.B.), with greatly increased radius of action.

The dividing line between large torpedo boats and small destroyers has often been indefinite, since later T.B's were sometimes larger than earlier T.B.D's, just as later destroyers have surpassed earlier light cruisers. The terms must



H.M. Torpedo Boat No. 98. [Cribb

therefore be related to period and country, rather than to tonnage. Although the original function of attack by torpedo has since been taken over by destroyers, submarines and aircraft, lineal descendants of the old torpedo boats were still built. In World War I there were the C.M.B's, (Coastal Motor Boats—see p. 38) and to-day we still have M.T.B's (Motor Torpedo Boats.).

Torpedo Boats (T.B's.)

The 2nd class T.B's had all gone long before 1914, leaving most of the larger 1st class boats which may be summarised as follows:—

Group	*Total*	*Tons*	*Years built*	*Numbered*
(1)	19	27-33	1877-80	1-20*
(2)	2	40	1885	39, 40.
(3)	57	60-75	1885-6	21-38, 41-79.
(4)	13	85-96	1889	82-87, 100-106
(5)	25	105-205	1885-1903	80, 81, 88-99, 107-117.
(6)	36	215-278	1906-08	1-36.

* No. 16, an unsuccessful experimental boat with hydraulic jet propulsion, is excluded.

Groups (1) and (2) were extinct before 1914, as were boats whose numbers are omitted below. The last group (6) were at first termed " Coastal Destroyers" or " Ocean-going Torpedo Boats ", and were to have been named after insects. Survivors of group (3), numbered between 21 and 79, were given the prefix O (O21, O79, etc.). Many of the old ships had been re-boilered and given two funnels in place of one. The 1914 armament is shown below but there were many wartime changes on the earlier boats which were used mostly for short range patrols. The later boats reinforced the patrol destroyer flotillas in home waters and in the Mediterranean. A few were stationed overseas, such as Nos. O29 and O60 at the Cape. Almost all were built by the firms of Thornycroft, Yarrow and White and after the War all remaining boats were for disposal, being sold in 1919-24.

O25 CLASS (Thornycroft)

Length: 127½ ft. *Beam:* 12½ ft. 60-70 tons. 600-700 h.p. 21 knots.
Guns: 2—3 pdr. *Torpedo tubes:* 3 or 4—14 in. *Complement:* 15.
Nos. O25/6/7/9. O41/2/3/4/5/6/9. O50/2/4/5/7/8. O60.
O46 foundered 1915 in the Mediterranean.

O30 CLASS (Yarrow)

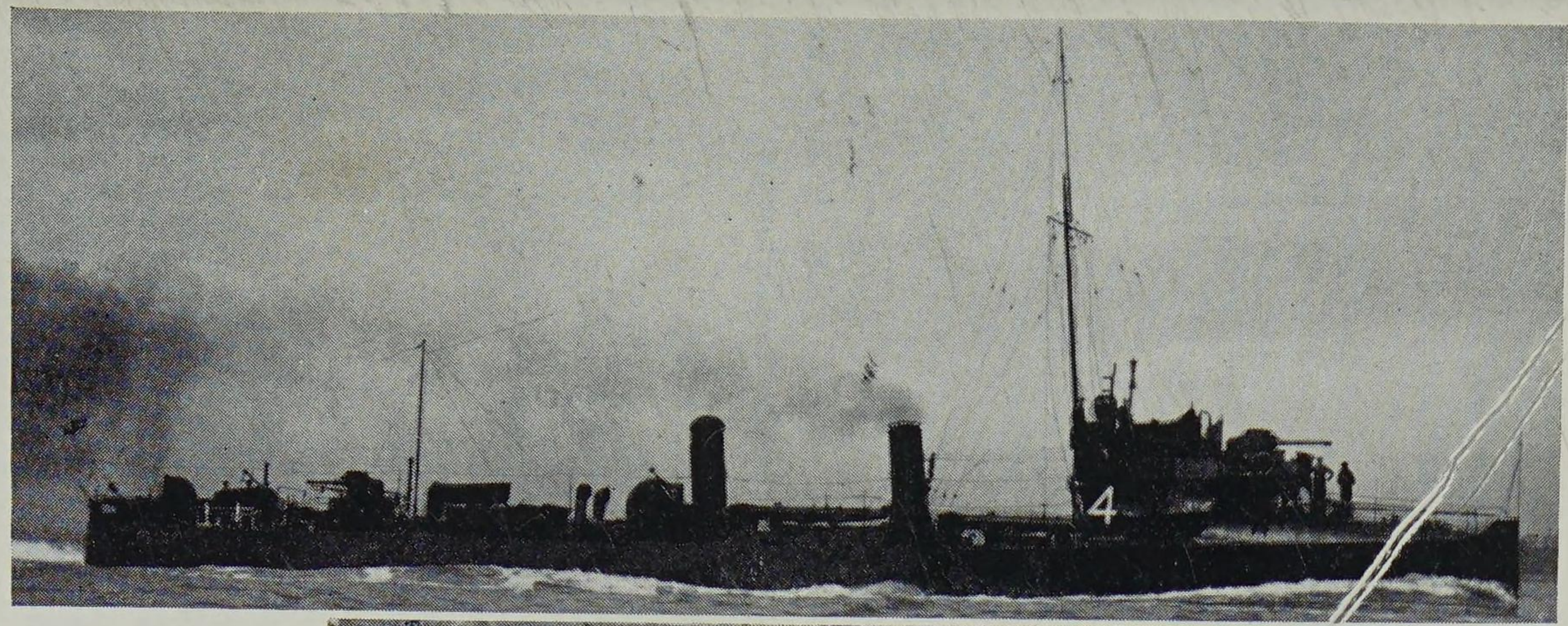
Length: 125 ft. *Beam:* 13 ft. 66-75 tons. 700 h.p. 19-20 knots.
Guns: 2—3 pdr. *Torpedo tubes:* 5—14 in. *Complement-:* 15.
Nos. O33. O63/4/5/6/7/8. O70/2/4/6/7/8.
O64 wrecked 1915 in the Aegean.
No. O79.
As above but 1,000 h.p., 22.5 knots.

O34 CLASS (White)

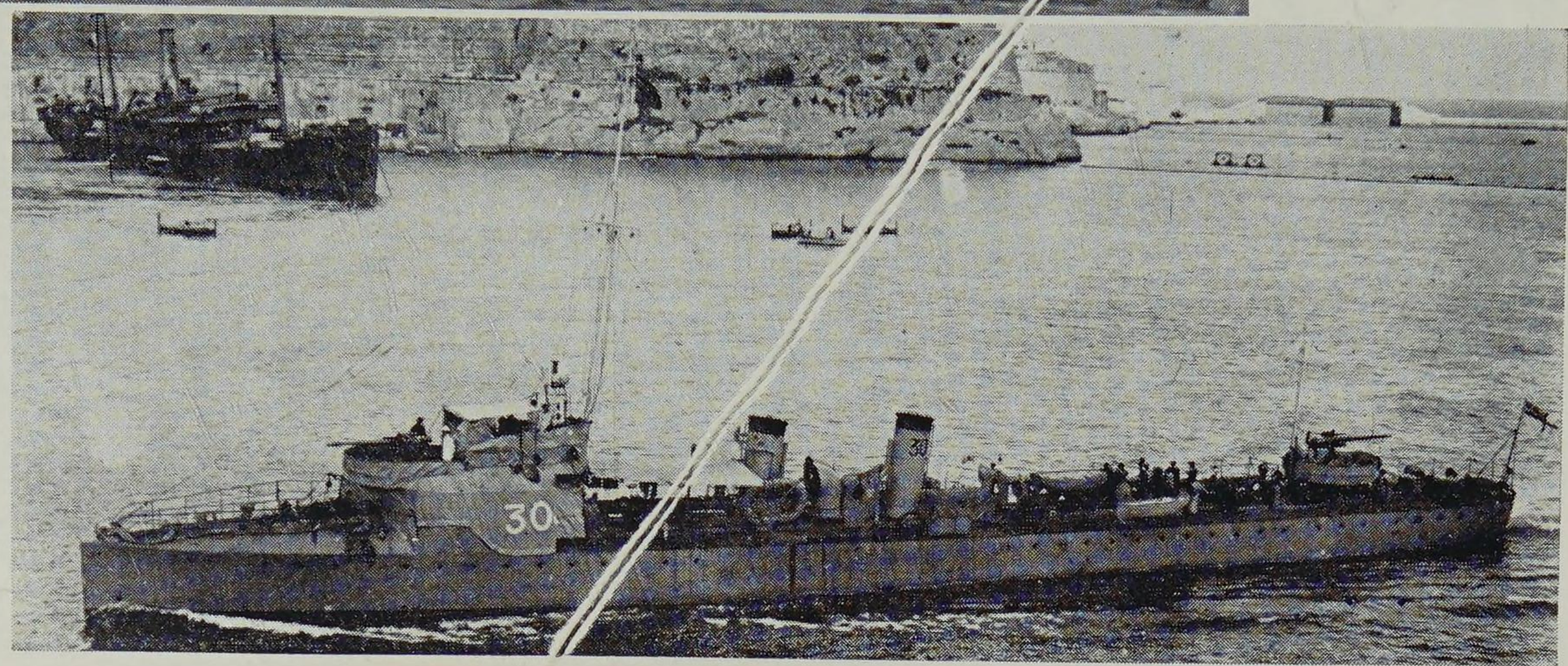
As O30 Class but *beam:* 14½ ft., 950 h.p.
Nos. O34/5/6/7/8.

No. 80 (Yarrow)

Length: 135 ft. *Beam:* 14 ft. 105 tons. 1,540 h.p. 23 knots.
Guns: 4—3 pdr. *Torpedo tubes:* 5—14 in. *Complement:* 21.



H.M. Torpedo Boat No. 4 (1906)



H.M. Torpedo Boat No. 30.
[*I.W.M.*

No. 81 (ex H.M.S. SWIFT—White)

Length: 150 ft. *Beam:* 17½ ft. 125 tons. 1,330 h.p. 20 knots.
Guns: 6—3 pdr. *Torpedo tubes:* 5—14 in. *Complement:* 25.

82 CLASS (Yarrow)

Length: 130 ft. *Beam:* 13½ ft. 85 tons. 1,100 h.p. 23 knots.
Guns: 3—3 pdr. *Torpedo tubes:* 3—14 in. *Complement:* 19.
Nos. 82/3/5/6/7.

Nos. 88 and 89 (Yarrow)

Length: 142 ft. *Beam:* 14¾ ft. 1600, h.p. 22 knots.
Otherwise as 82 Class.

No. 90 (Yarrow)

Length: 140 ft. *Beam:* 14¼ ft. 100 tons. 1,430 h.p. 23 knots.
Otherwise as No. 88.
No. 90 foundered 1918 in the Straits of Gibraltar.

Nos. 91 and 92 (Thornycroft)

Length: 140 ft. *Beam:* 15½ ft. 130 tons. 2,400 h.p. 23-24 knots.
Guns: 3—3 pdr. *Torpedo tubes:* 3—14 in. *Complement:* 18.
No. 93 was similar but had twin screws.

94 CLASS (White)

As Nos. 91 and 92 but 2,000 h.p.
No. 97 was similar but with 2,690 h.p.
Nos. 94-96. No. 96 was lost in collision 1915 in the Straits of Gibraltar.

98 CLASS (Thornycroft)

Length: 160 ft. *Beam:* 17 ft. 178 tons. 2,850 h.p. 25 knots.
Guns: 3—3 pdr. *Torpedo tubes:* 3—14 in. *Complement:* 32.
Nos. 98, 99, 107, 108.
As above but *Length:* 160 ft., *Beam:* 17½ ft., 200 tons.
Nos. 109, 110, 111, 112, 113.

114 CLASS (White)

Length: 165 ft. 205 tons. Otherwise as 98 Class.
Nos. 114, 115, 116, 117.
No. 117 was lost in collision 1917 in the English Channel.

Note. Nos. 100-106 were boats of group (4), built (with names) for service in India and later taken into the Navy. They are usually omitted from 1914 lists as having been struck off. However Nos. 101/4/5 were in existence and served in minor roles during the war.

Up to No. 117 all ships had reciprocating engines and all except No. 93 were single screw. The later ships to be described below all had turbines and were triple screw.

LATER TORPEDO BOATS (New Nos. 1-36)

Particulars common to all:—3,750-4,000 h.p. 26-27 knots.
Guns: 2—12 pdr. *Torpedo tubes:* 3—18 in. *Complement:* 33-35.
Length: 175 ft. *Beam:* 17½ ft. 235-261 tons. White, 1906.
Nos. 1, 2, 3, 4, 5,.

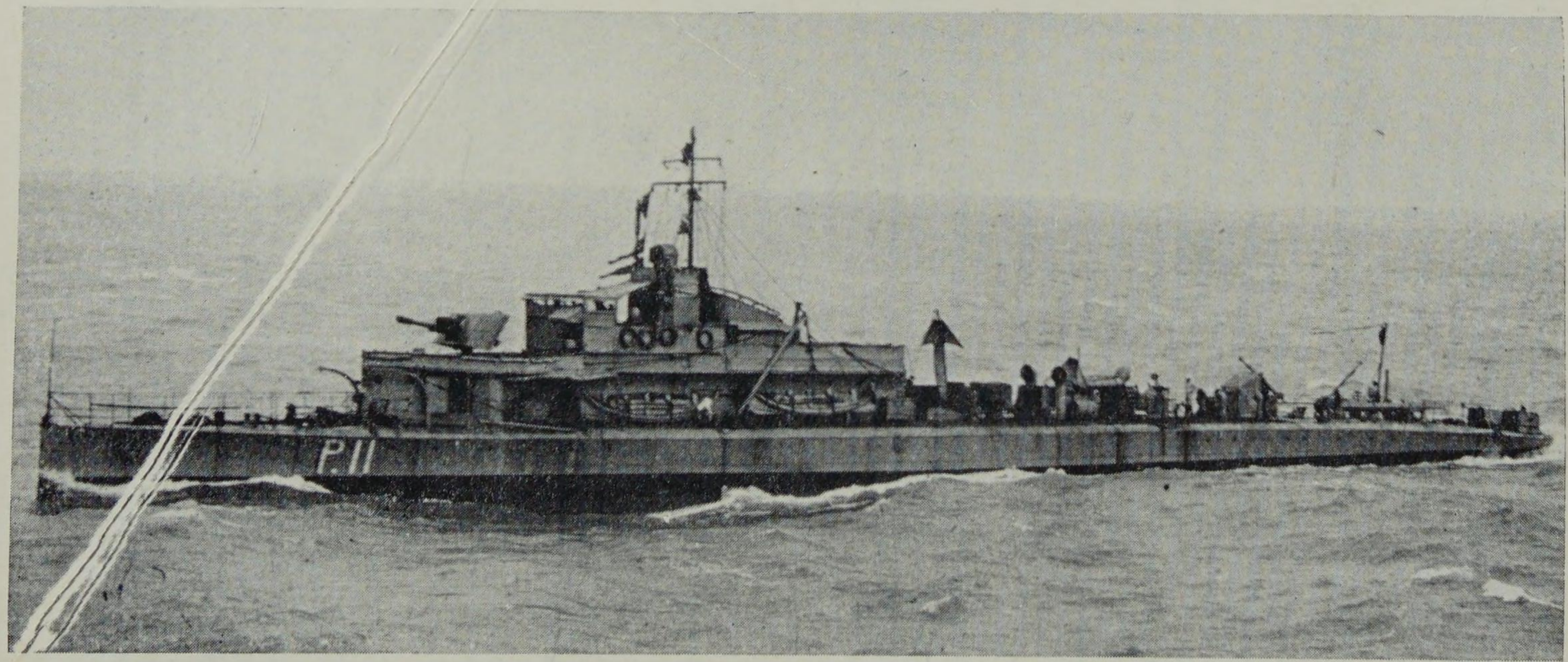
Length: 166½ ft., *Beam:* 17½ ft. 244-255 tons. Thornycroft, 1906-7.
Nos. 6, 7, 8, 9, 10.
No. 9 was lost in collision 1916 in the North Sea.
No. 10 was torpedoed by U-boat in 1915 in the North Sea.
Length: 172 ft. *Beam:* 18 ft. 225-263 tons. Yarrow, 1906-7.
Nos. 11, 12. No. 11 was mined in 1916 off the East Coast.
No. 12 was torpedoed by U-boat 1915 in the North Sea.
Length: 182 ft. *Beam:* 18 ft. 256-283 tons. White, 1907-8.
Nos. 13, 14, 15, 16, 25, 26, 27, 28.
No. 13 was lost in collision 1916 in the North Sea.
Length: 180 ft. *Beam:* 18 ft. 259-272 tons. Denny, 1907-8.
Nos. 17, 18, 29, 30.
Length: 178¾ ft. *Beam:* 18⅓ ft. 278-312 tons. Thornycroft, 1907-8.
Nos. 19, 20, 31, 32.
Length: 185 ft. *Beam:* 18⅔ ft. 308-328 tons. Hawthorn Leslie, 1907-9.
Nos. 21, 22, 33, 34.
Length: 177⅓ ft. *Beam:* 18 ft. 263-282 tons. Yarrow, 1907.
No. 23.
Length: 177 ft. *Beam:* 17¾ ft. 292-315 tons. Palmer, 1908-9.
Nos. 24, 35, 36.
No. 24 was wrecked in 1917 off Dover.

Patrol Boats (P and PC-Boats)

Designed chiefly to hunt U-boats, the ships, put in hand by 18 builders, were fitted with hardened steel ram in the bows.

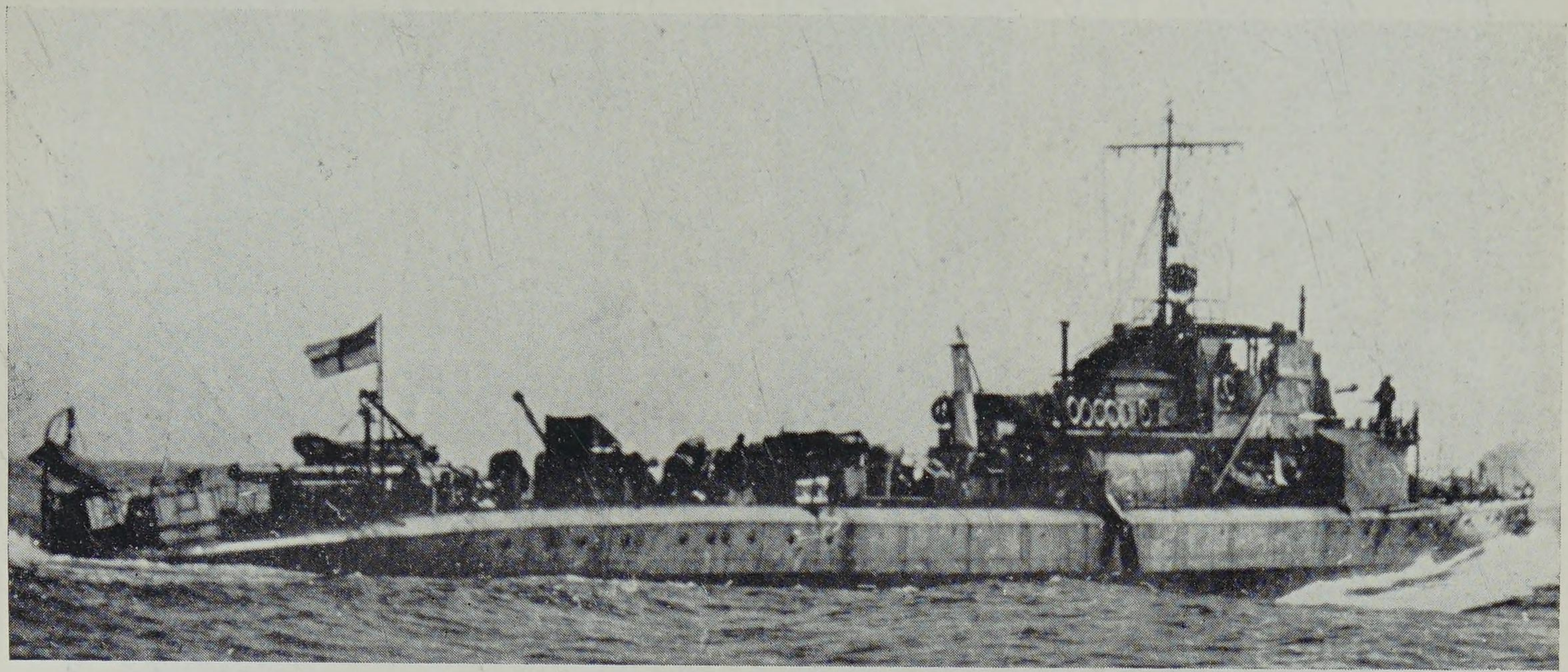
P-BOATS

Length: 244½ ft. *Beam:* 23¾ ft. *Displacement:* 578-613 tons.
Turbines. 2 screws. 3,500-4,000 h.p. 20-23 knots.
Guns: 1—4 in. and smaller. *Torpedo tubes:* 2—14 in. *Complement:* 50-55.
1915: **P11, 12, 17, 24, 26, 27.**
1916: **P14, 15, 16, 18-23, 25, 28-37, 40, 41, 50, 52, 75*.**
1917: **P38, 39, 45-49, 53, 54, 57, 58, 59, 64.**
* Originally P13. P12 was lost in collision in the English Channel in 1918 and P26 was mined off Havre in 1917. In 1920 P57 went to Egypt and in 1924 P38 became the Fishery Protection Vessel *Spey*, sold in 1937. Most of the others were sold in 1921-5 and the last, P59, in 1939.



H.M. P-Boat, P 11.

[I W.M.



H.M. P-Boat, P 18.

[N.P.C

PC-BOATS

Twenty further boats were completed as Q-ships, disguised as coastal freighters. At first termed " PQ-Boats ", and later " PC-Boats ", they differed from P-boats: *Beam:* 25½-26¾ ft., *Displacement:* 682-692 tons, 4 Torpedo tubes.
1917: **PC42-44, 51, 55, 56, 60-63, 65, 67, 68.**
1918: **PC66, 69, 70-74.**
None were lost in the war. In 1924 PC73 became the Fishery Protection Vessel *Dart*, PC55 and 69 the Indian Training Ships *Baluchi* and *Pathan*. The others were all sold in 1921-26 except PC74 which was still in service in 1939.

Coastal Craft

Motor Launches (M.L's.)

To obtain rapid supply, engines and parts of these vessels were ordered in the U.S.A., assembled in Canada and transported to Britain in 130 shipments. With the exception of thirty (ML 551-580), built in 1918, most of them were completed in 1915-16.

ML 1-50

Length: 75 ft. *Beam:* 12 ft. 34 tons.
Petrol engines. 2 screws. 440 h.p. 19 knots.
Guns: 1—3 pdr. or 2 pdr. A.A., also M.G. or Lewis. *Complement:* 8.

ML 51-580

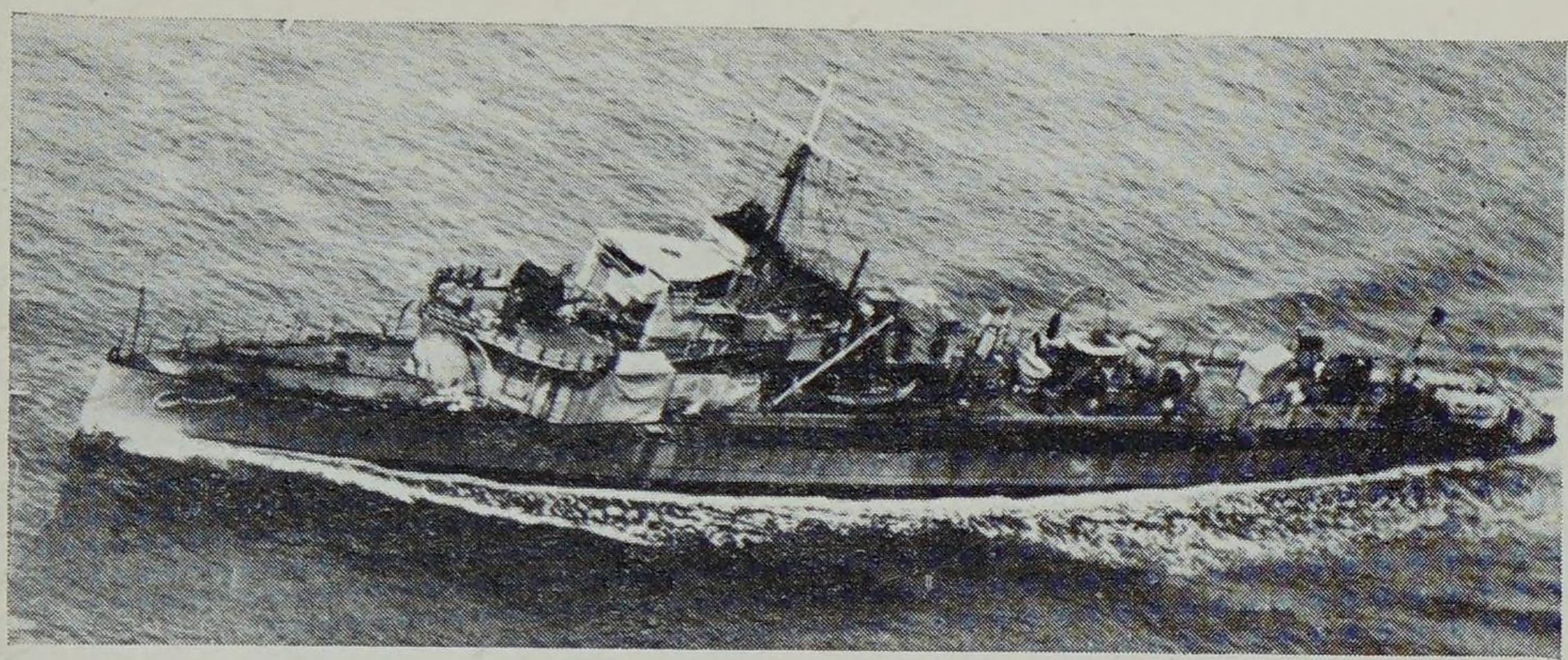
Length: 80-88 ft. *Beam:* 12⅙ ft. 37 tons.
Guns: 1—3 in. A.A. or smaller. *Complement:* 9-10. Otherwise as above.
About 19 ships were not listed and it is assumed that they were lost in transit across the Atlantic. These were ML388, 390/2/4/6, 400/2/4, 451/3/9, 469-472, 543/4/7/8. 29 were lost during the war: ML18, 19, 40, 52, 55, 62, 64, 110, 121, 149, 191, 197, 230, 247, 253, 254, 255, 278, 356, 403, 421, 424, 431, 474, 534, 540, 541, 561, 566. Many of these were lost by fire as was ML229 on the Rhine in 1919. After the war they were rapidly sold, only ML339 being in service in 1927. Many found a last resting place as houseboats moored by the banks of estuaries.

Coastal Motor Boats (C.M.B's.)

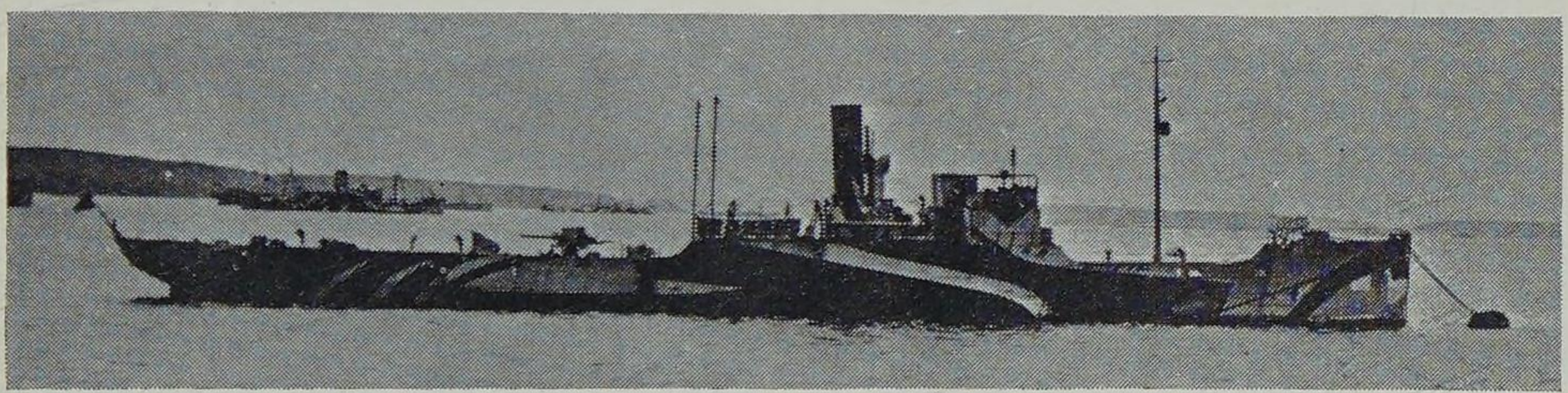
Before the war the fastest small craft were racing motor boats and these were the basis of a new form of torpedo boat introduced early in 1916. Developed by Messrs. Thornycroft, well-known specialists in such work, the first boats were secretly built at small yards on the Thames. The stepped hydroplane hulls, with chine to prevent bow spray, were most successful and speeds of over 40 knots were reached. Too small to carry tubes, they launched their torpedoes by ramp, nose first over the stern, the boats being fast enough to swerve aside before being overtaken. Three sizes were built: 40 ft., 55 ft. and 70 ft. Like the early small torpedo boats they were at times carried on bigger ships. Some light cruisers in the North Sea could carry two slung on davits, whilst H.M.S. *Diamond* in the Mediterranean became a " C.M.B. Carrier."

40 ft. C.M.B's.

Length: 45 ft. (over trough). *Beam:* 8½ ft. 5 tons.
Petrol engine. 1 screw. 350-375 h.p. 34-37 knots.
1—18 in. torpedo. 2 to 4 Lewis guns. *Complement:* 2 or 3.

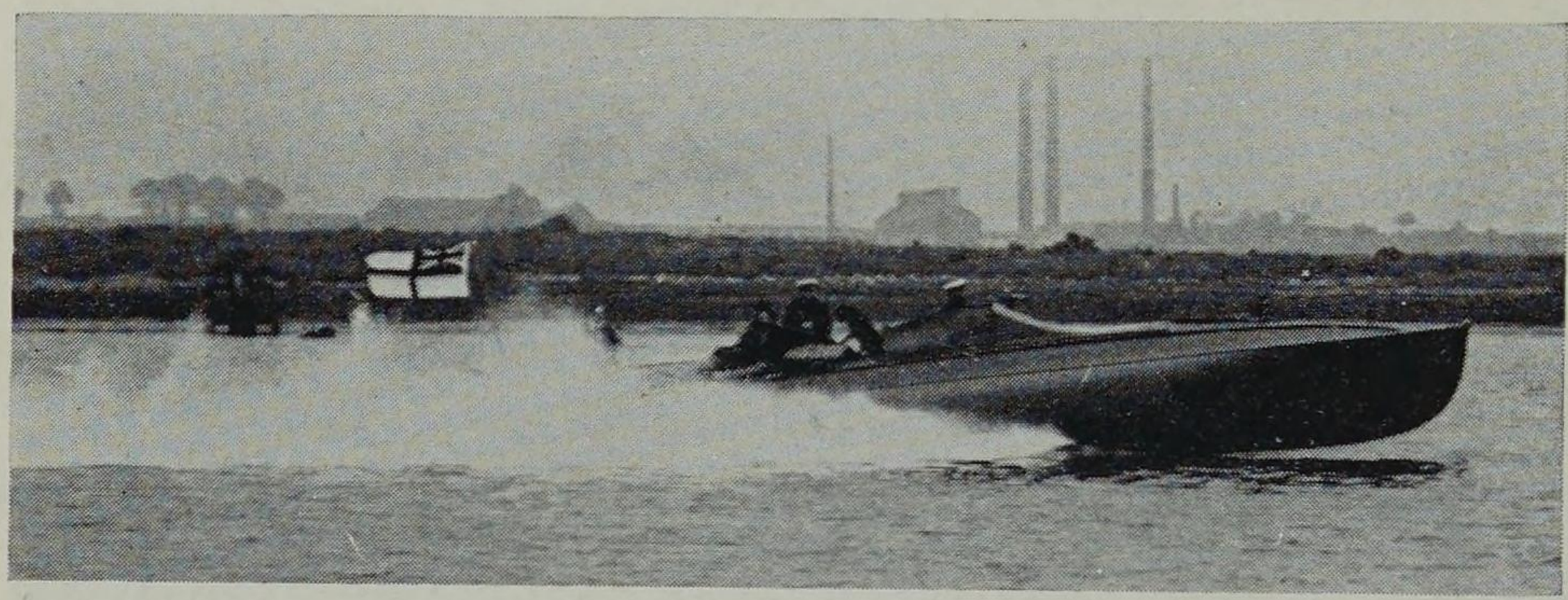


H.M. P-Boat, P37. [I.W.M.

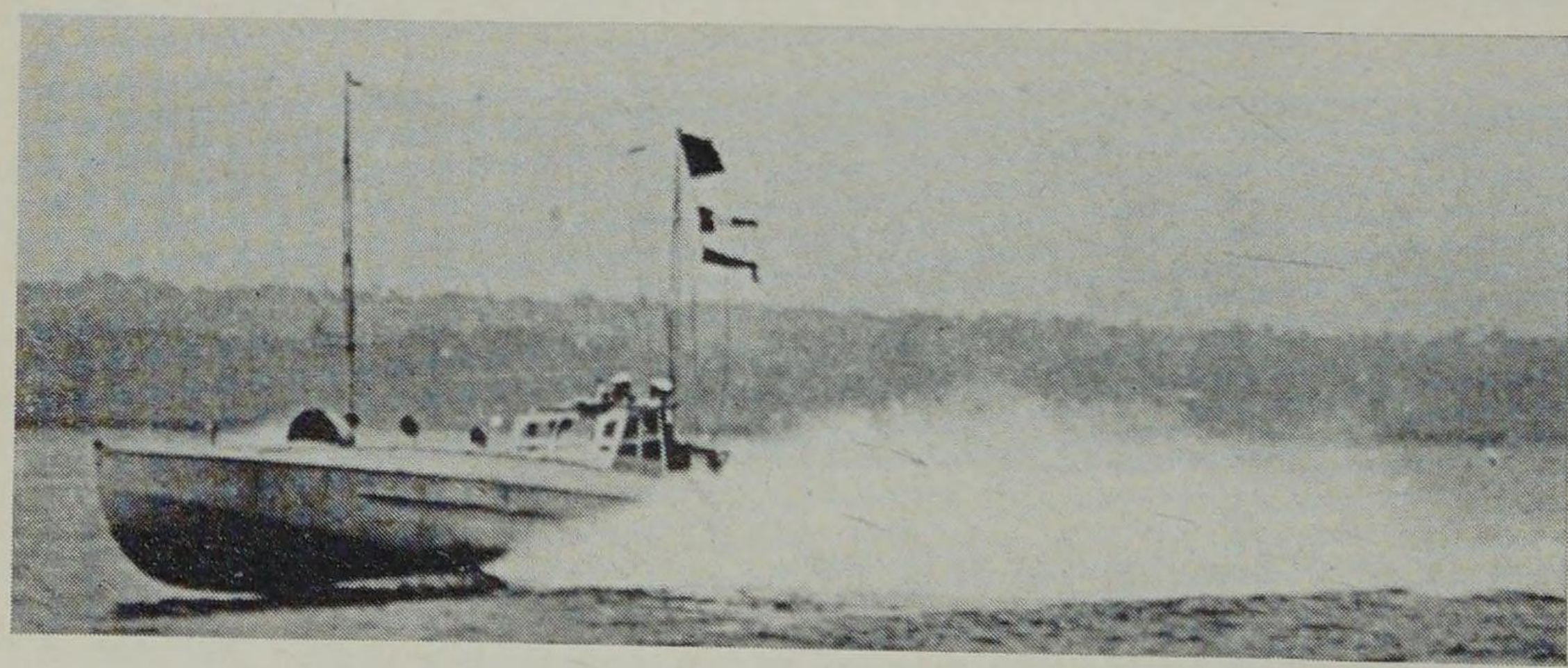


H.M. PC.69 (P-Boat disguised as Q-Ship). [N.P.C.

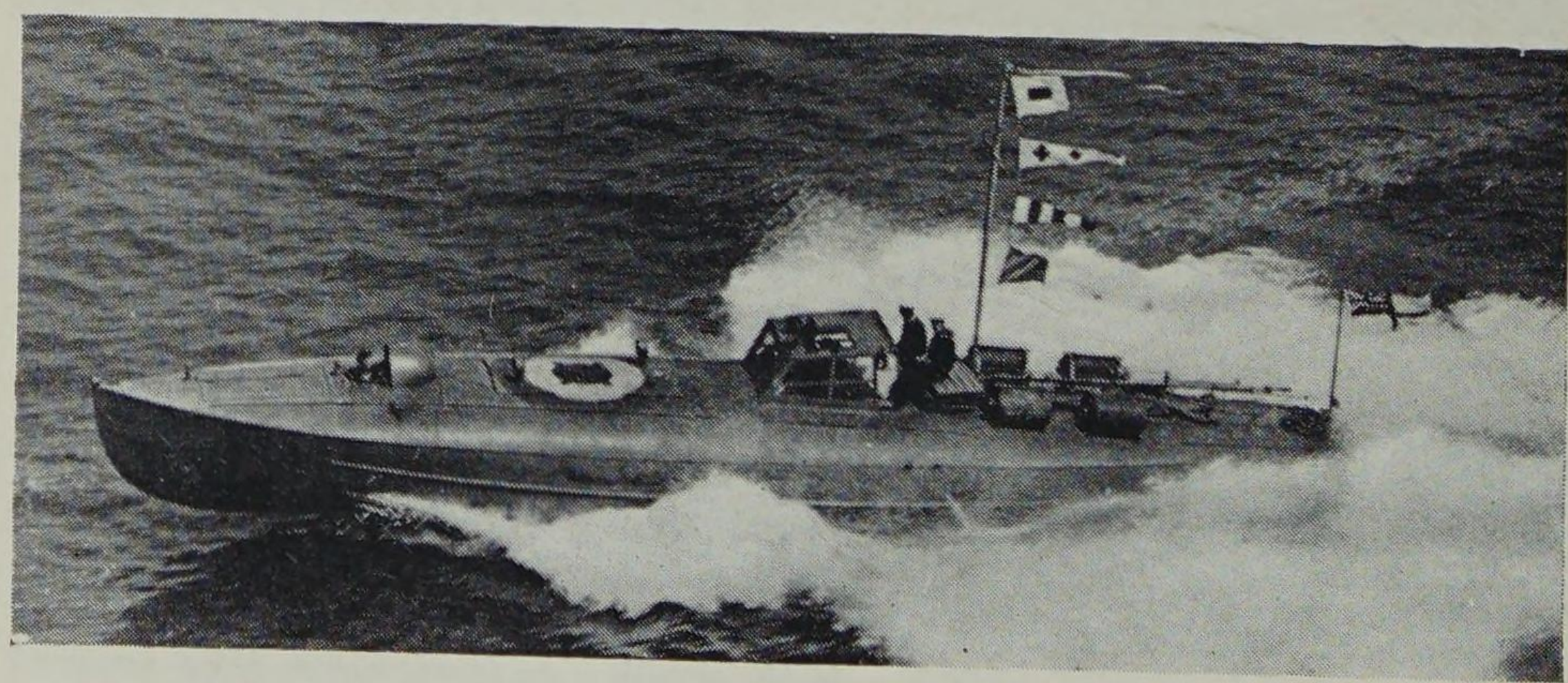
H.M.M.L. 568, motor launch. [N.P.C.



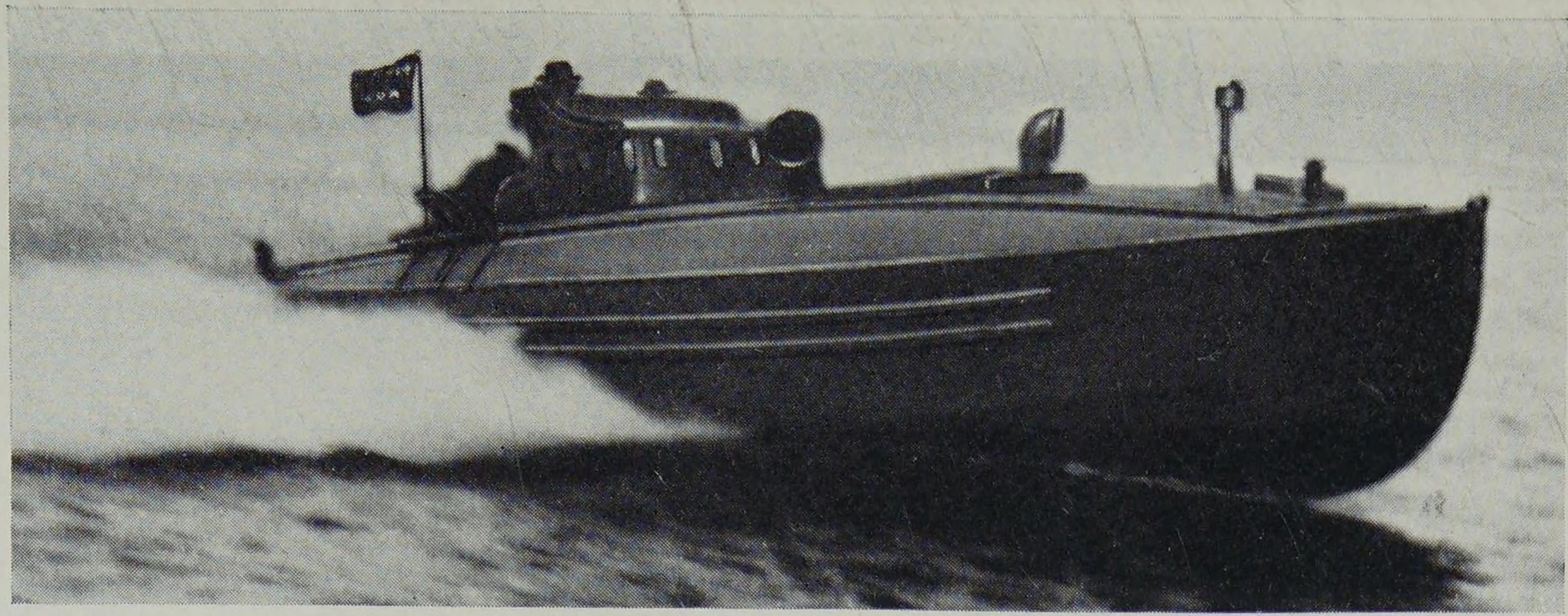
40 ft. C.M.B. (Coastal motor boat). [*John I. Thornycroft & Co. Ltd.*



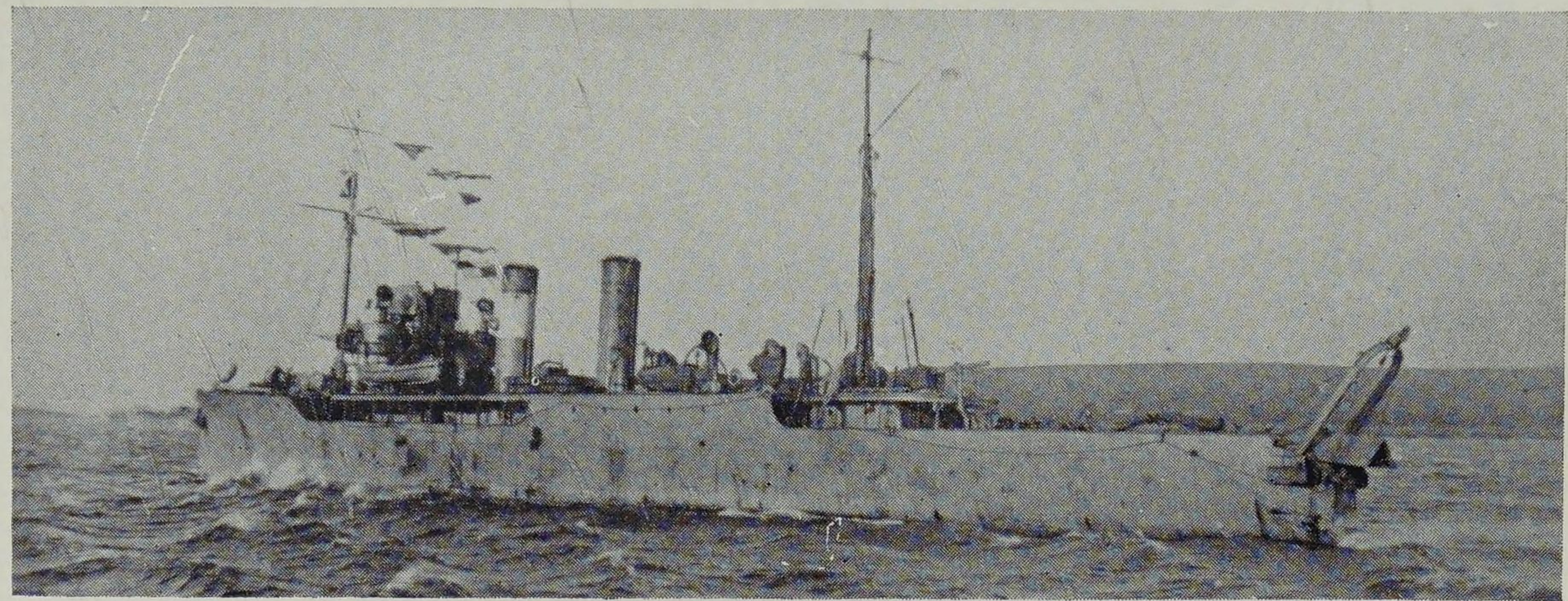
55 ft. C.M.B. (Coastal motor boat). [*John I. Thornycroft & Co. Ltd.*



55 ft. C.M.B. No. 65A. [*I.W.M.*



70 ft. C.M.B. (Coastal motor boat).
[*John I. Thornycroft & Co. Ltd.*



H.M.S. *Marigold*, Flower class sloop. [*N.P.C.*

40ft. C.M.B.'s

1916: **CMB 1, 2, 3, 4, 5, 6*, 7, 8, 9, 10, 11, 12, 13.**

1918: **CMB 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61.**

1920: **CMB 112, 121, 122, 123.**

* CMB 6 later renumbered 11. War losses: CMB 1, 2, 8, 10, 11, 40, 42, 47, 50.

55 ft. C.M.B's.

Length: 60 ft. (over trough). *Beam:* 11 ft. 11 tons. *Complement:* 3-5.
Petrol engines. 2 screws*. 750-900 h.p. 34-42 knots.
* The first ship was experimental with 3 screws and not numbered in the C.M.B. series.

1 or 2—18 in. torpedoes. Nil to 4 Depth Charges. 4 Lewis guns.
Suffixes A, B, BD, C, etc., refer to type of engines and armament.

1917: **CMB 14A, 15A, 16A, 17A, 18A.**

1918: **CMB 19A, 20A, 21B, 22B, 23B, 24A, 25BD, 26B, 27A, 28A, 29A, 30B, 31BD, 32A, 33A, 34A, 35A, 36A, 37A, 38B, 39B, 62BD, 63BD, 64BD, 65A, 66BD, 67A, 68B, 69A, 70A, 71A, 72A, 73BD, 74BD, 75B, 76A, 77A, 78E, 79A, 80CE, 81CE, 82C, 83CE, 84CE, 86BD, 87B, 89BD, 93E, 94E, 95E, 96E.**

1919: **CMB 85CE, 88BD, 90BD, 91B, 92BD, 97E, 98ED, 99ED, 113CK, 114D, 115DE, 116D, 117D.**

1922: **118D, 119D, 120F.**

War losses: CMB 18A, 39B, 62BD, 67A, 71A, 79A. Missing Nos. 105-111 are said to have been used as target boats.

70 ft. C.M.B's.

Length: 72½-75 ft. (over trough). *Beam:* 14 ft. 24 tons.
Petrol engines. 2 screws. 900-1,500 h.p. 28.5 knots.
4 Mines or 5 torpedoes. 6 Lewis guns. *Complement:* 6.

1919: **100M, 101M, 102MT.** 1922: **103MT, 104MT.**

These ships were intended as minelayers, but could be adapted for alternative armament.

All the C.M.B's were gradually discarded from 1921 until the mid-1930's, when only H.M.S. *Hornet* (ex C.M.B. 102MT) survived as base ship at Gosport. By this time plans for new M.T.B's, etc., were under consideration.

Sloops

FLOWER CLASS

The first small ships of the war programme were 72 two-funnelled " Flowers " or " Herbaceous Borders ", officially termed Fleet Sweeping Vessels (Sloops). Designed on merchant ship lines, they could be built in six months and in yards without previous naval experience. Primarily intended for minesweeping, they

were easily adaptable for other duites. Consequently there were many variations in appearance and armament as well as others due to rebuilding after mine damage. One of these was rebuilt as a Q-ship and a further 39 were completed as such. These had single funnels, and as the merchant ship silhouette was left to the builders, variations were again many. The " Flower-Q's " were employed mainly on convoy and anti-submarine work. Officially the class was divided into five " types ".

(1) **ACACIA TYPE.** All 1915.

Length: 262½ ft. *Beam:* 33 ft. *Displacement:* 1,200 tons.
Triple expansion (4-cyl.). 1 screw. 2,400 h.p. 15-17 knots.
Guns: 2—4 in. or 12 pdr. and smaller. *Complement:* 77-104.

Name		*Name*	
Acacia	1922 Sold.	**Laburnum**	1946 Discarded.†
Anemone	1922 Sold.	**Larkspur**	1922 Sold.
Aster	1917 Mined in Med.	**Lavender**	1917 Torpedoed, E. Channel.
Begonia*	1917 Torpedoed in Atlantic.	**Lilac**	1922 Sold.
Bluebell	1930 Sold.	**Lily**	1923 Depot ship, 1930 Sold.
Daffodil	1935 Sold.		
Dahlia	1932 Sold.	**Magnolia**	1932 Sold.
Daphne	1923 Sold.	**Marigold**	1920 Sold.
Foxglove	1946 Sold.	**Mimosa**	1922 Sold.
Hollyhock	1930 Sold.	**Primrose**	1923 Sold.
Honeysuckle	1922 Sold.	**Sunflower**	1921 Sold.
Iris	1920 Sold.	**Veronica**	1935 Sold.
Jonquil	1920 to Portugal		

* Rebuilt as Q-ship 1916. † Other sources say believed lost to the Japanese in 1942.

(2) **AZALEA TYPE.** All 1915.

As (1) above but originally 2—4.7 in. guns and complement: 79.

Name		*Name*	
Azalea	1923 Sold.	**Jessamine**	1922 Sold.
Camellia	1923 Sold.	**Narcissus**	1922 Sold.
Carnation	1922 Sold.	**Snowdrop**	1923 Sold.
Clematis	1931 Sold.	**Zinnia**	1920 to Belgium.
Heliotrope	1935 Sold.		

(3) **ARABIS TYPE.** 1915-16.

Length: 267¾ ft. *Beam:* 33½ ft. *Displacement:* 1,250 tons.
Otherwise as (2) above but variant armament.

Name		Name	
Alyssum	1917 Mined off Ireland.	**Lupin**	1946 Sold and foundered.
Amaryllis	1923 Sold.	**Mallow**	1921 to R.A.N.
Arabis	1916 Torp. N. Sea.	**Marguerite**	1921 to R.A.N.
Asphodel	1920 to Denmark.	**Mignonette**	1921 to R.A.N.
Berberis	1923 Sold.	**Myosotis**	1923 Sold.
Buttercup	1920 Sold.	**Myrtle**	1919 Mined, Baltic.
Campanula	1922 Sold.	**Nasturtium**	1916 Mined in Med.
Celandine	1923 Sold.	**Nigella**	1922 Sold.
Cornflower	1941 Lost at Hong Kong.	**Pansy**	1920 Hulk at Calcutta.
Crocus	1930 Sold at Bombay.	**Pentstemon**	1920 Sold.
Cyclamen	1932 Sold.	**Peony**	1919 Sold for merchant service.
Delphinium	1933 Sold.	**Petunia**	1922 Sold.
Genista	1916 Torpedoed off Ireland.	**Poppy**	1923 Sold.
Gentian	1919 Mined, Baltic.	**Primula**	1916 Torp. in Med.
Geranium	1921 to R.A.N.	**Rosemary**	1948 Sold.
Gladiolus	1920 to Portugal.	**Snapdragon**	1920 Target service, 1934 Sold.
Godetia	1937 Sold.	**Valerian**	1927 Lost in hurricane.
Hydrangea	1920 Sold at Hong Kong.	**Verbena**	1933 Sold.
Lobelia	1920 to Newfoundland.	**Wallflower**	1931 Sold.
		Wisteria	1931 Sold.

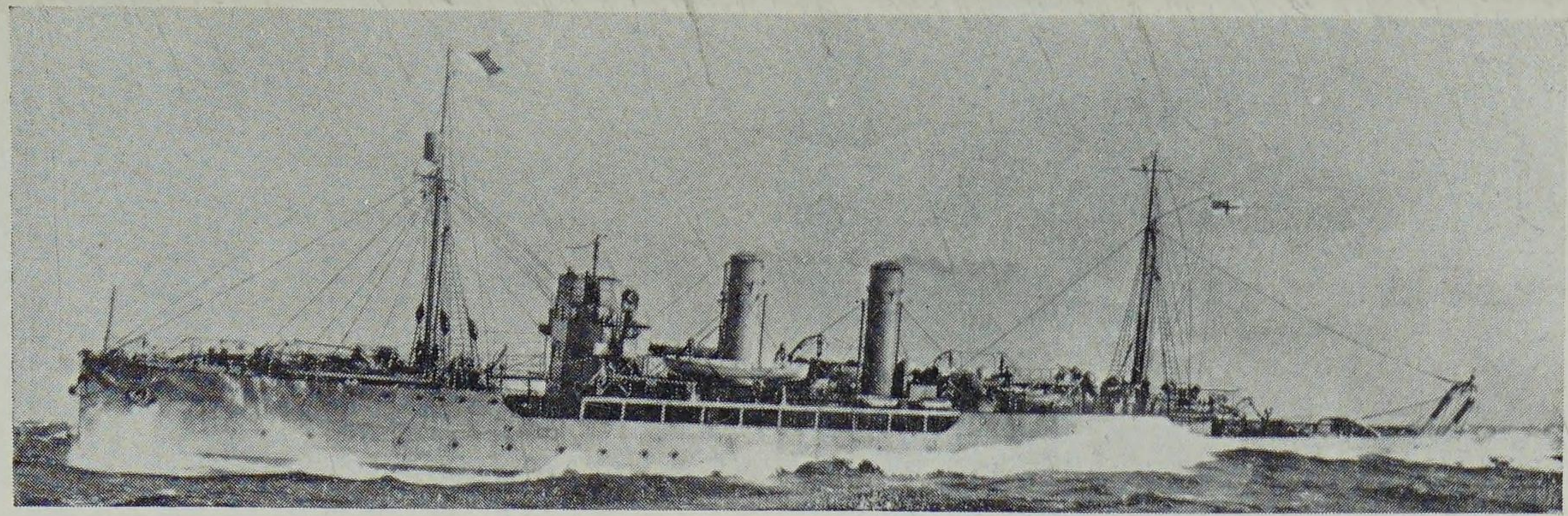
(4) **AUBRETIA TYPE (Q-SHIPS).** All 1916.

As (3) above but 2,500 h.p., 16-17.5 knots. *Complement:* 80.
Guns: 2—4 in., 1—3 pdr. A.A. and depth charge throwers.

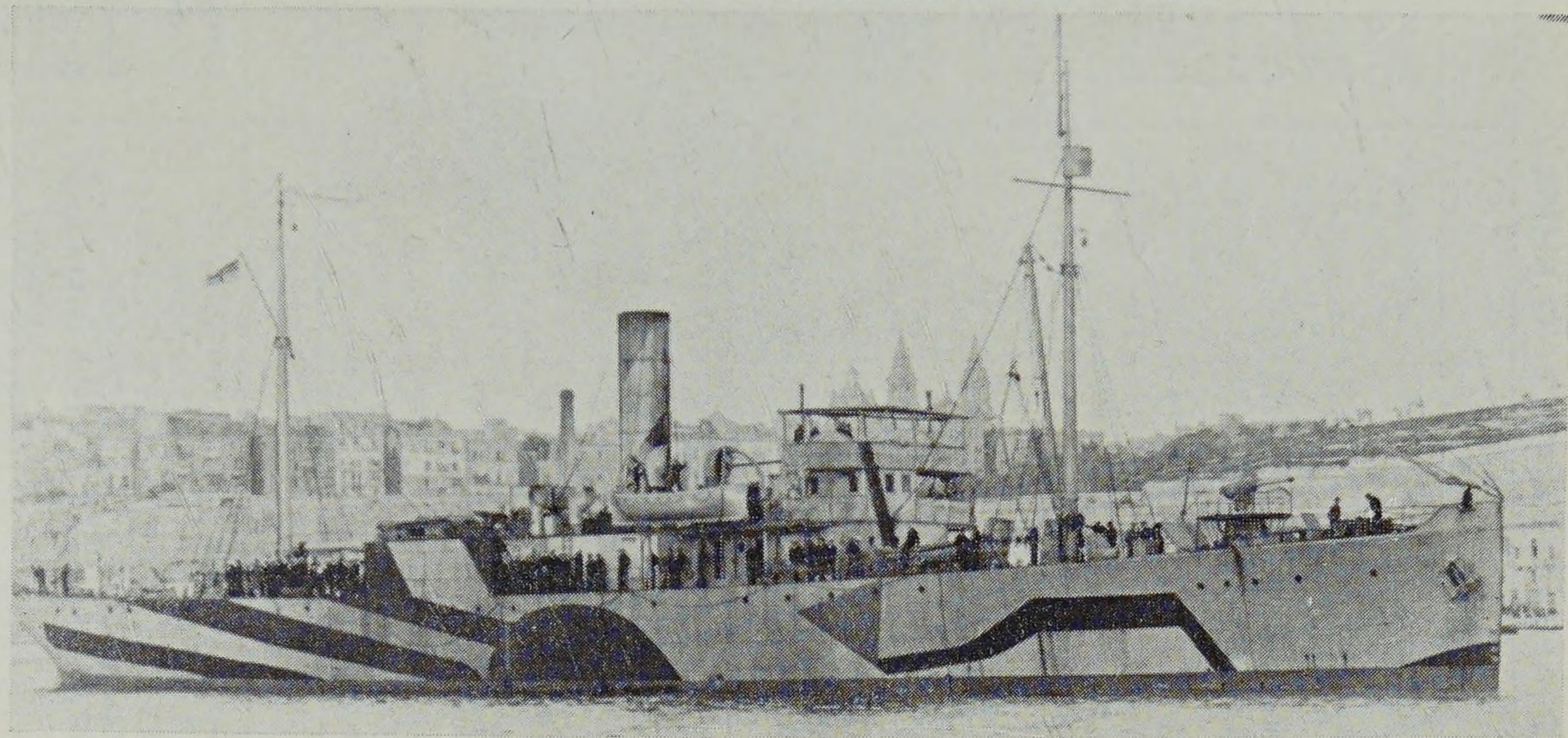
Name		Name	
Aubretia	1922 Sold.	**Tamarisk**	1922 Sold.
Heather	1923 Sold.	**Tulip**	1917 Torpedoed in Atlantic.
Salvia	1917 Torpedoed off Ireland.	**Viola**	1922 Sold.

(5) **ANCHUSA TYPE (Q-SHIPS).** 1917-18.

Length: 262½ ft. *Beam:* 35 ft. *Displacement:* 1,290 tons.
Complement: 93. Otherwise as (4) above.



H.M.S. *Verbena*, Flower class sloop. [*I.W.M.*



H.M.S. *Ceanothus* Flower class Q-ship.

(5) ANCHUSA TYPE (Q SHIPS)

Name		Name	
Anchusa	1918 Torpedoed off N. Ireland.	**Gardenia**	1923 Sold.
Arbutus	1917 Torpedoed off S.W. Ireland	**Gilia**	1923 Sold.
Auricula	1923 Sold.	**Harebell**	1939 Sold.
Bergamot	1917 Torpedoed in Atlantic.	**Hibiscus**	1923 Sold.
Bryony	1938 Sold.	**Ivy**	1921 Sold.
Candytuft	1917 Torp. in Med.	**Lychnis**	1921 to India.
Ceanothus	1921 to India.	**Marjoram**	1921 Wrecked.
Chrysanthemum	1938 R.N.V.R. drill ship.	**Mistletoe**	1921 Sold.
Convolvulus	1922 Sold.	**Montbretia**	1921 Sold.
Coreopsis	1922 Sold.	**Pelargonium**	1921 Sold.
Cowslip	1918 Torpedoed off Morocco.	**Polyanthus**	1921 Sold.
Dianthus	1921 Sold.	**Rhododendron**	1918 Torp., N. Sea.
Eglantine	1922 Sold.	**Saxifrage**	1922 Drillship *President II.*
Gaillardia	1918 Mined off Orkneys.	**Silene**	1922 Sold.
		Spiraea	1922 Sold.
		Sweetbriar	1927 Sold.
		Syringa	1920 to Egypt
		Tuberose	1923 Sold.
		Windflower	1927 Sold.

24 CLASS

(Not termed " Racehorse " Class to avoid possible confusion with paddle minesweepers named after racecourses.)

With straight stem and stern, dummy bridge aft and a single funnel amidships, both ends of the ship appeared identical. There was one mast but as this was before the funnel on some ships and abaft on others, the ships' course was difficult to ascertain. Confusion was further enhanced by dazzle painting.

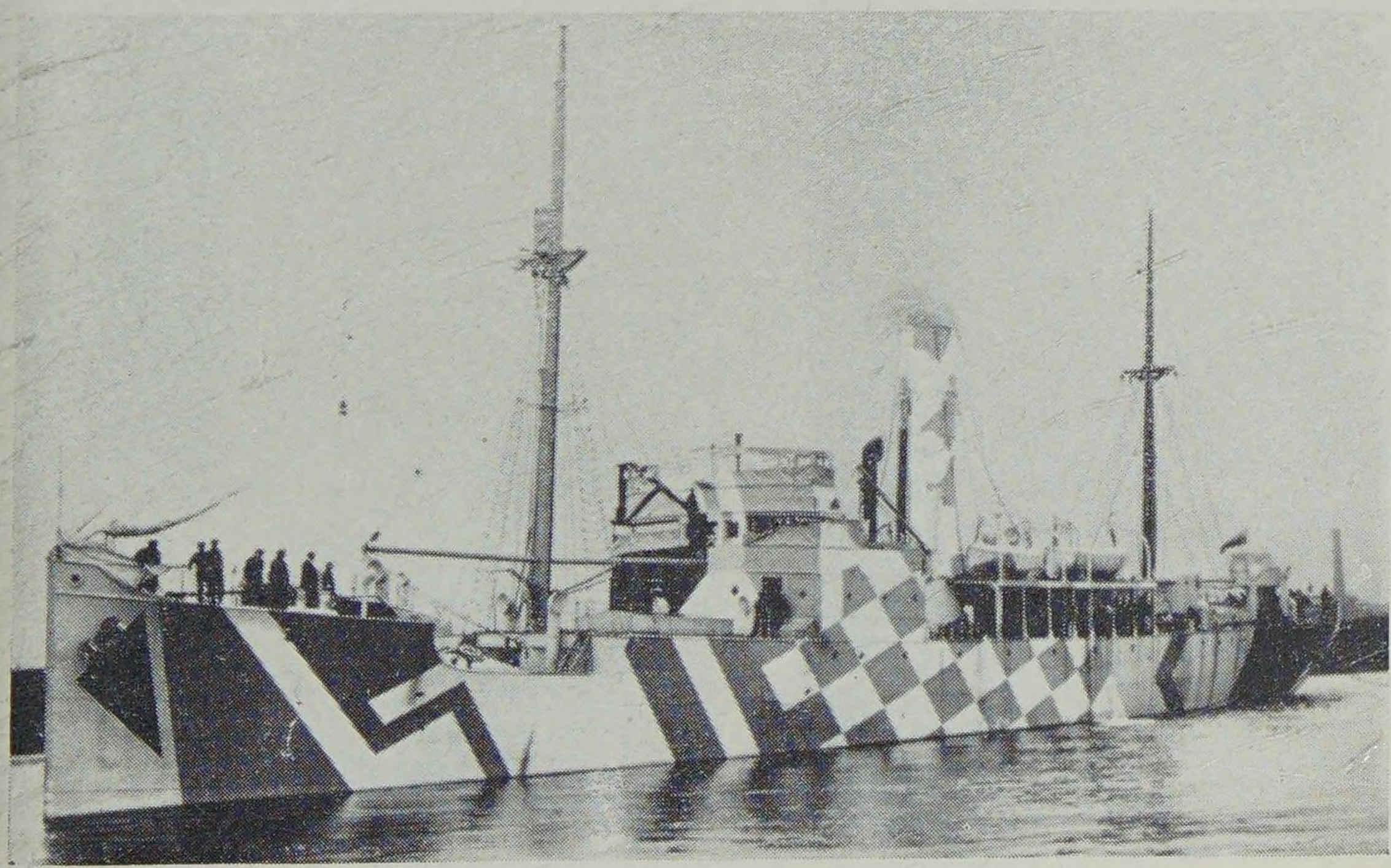
Length: 276½ ft. *Beam:* 34¾ ft. *Displacement:* 1,320 tons.
Triple expansion (4-cyl.). 1 screw. 2,500 h.p. 17 knots.
Guns: 2—4 in. or various. *Complement:* 82. All 1918-19.

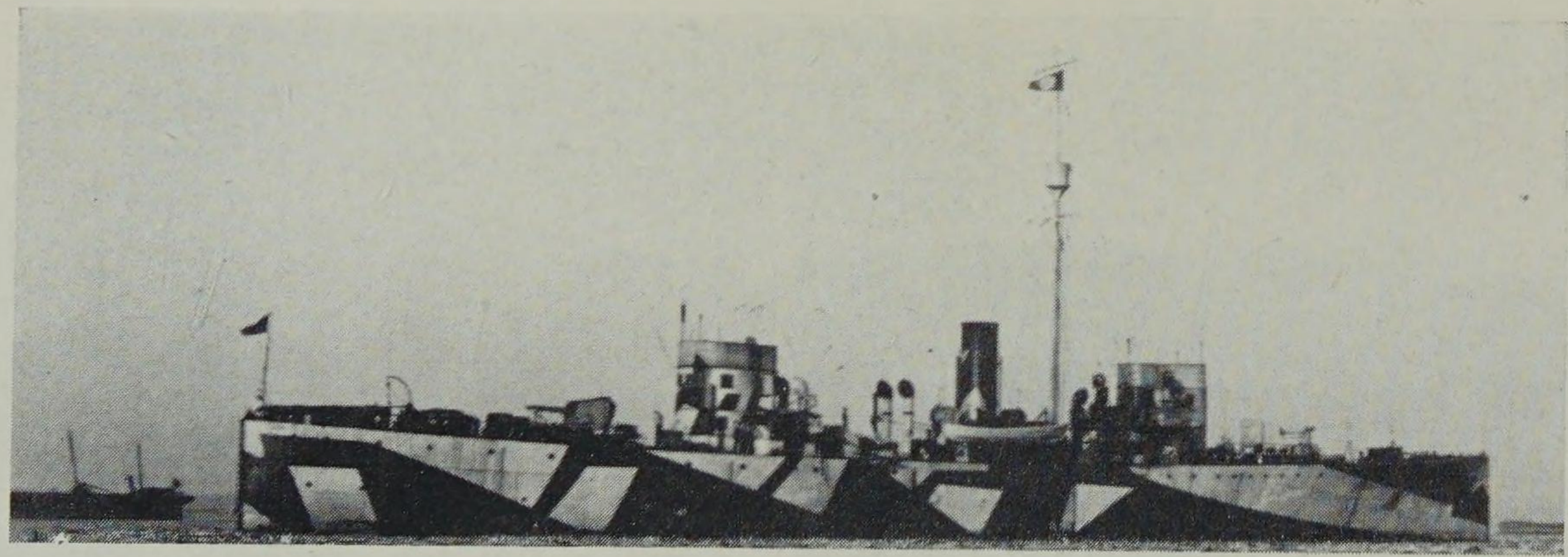
Name		Name	
Ard Patrick	1920 Sold.	**Orby**	1922 Sold.
Bend Or	1922 Sold.	**Ormonde**	1921 Survey, 1937 Sold.
Cicero	1920 Sold.	**Persimmon**	1920 Sold at Malta.
Donovan	1922 Sold.	**Rock Sand**	1932 Sold.
Flying Fox	1920 Drillship at Bristol.	**Sanfoin**	1922 Sold.
Harvester	1922 Sold.	**Sefton**	1922 Sold.
Iroquois	1921 Survey, 1937 Sold.	**Silvio**	1925 R.A.N. Survey *Moresby.*
Isinglass	1932 Sold.	**Sir Bevis**	1925 Drillship *Irwell.*
Ladas	1925 Mooring V., 1936 Sold.	**Sir Hugo**	1925 Mooring V., 1930 Sold.
Merry Hampton	1921 Survey ship *Herald.*	**Sir Visto**	1920 Sold at Malta.
Minoru	1920 Sold at Malta.	**Spearmint**	1922 Sold.

Sister ships: *Galtee More* and *Sunstar* cancelled.

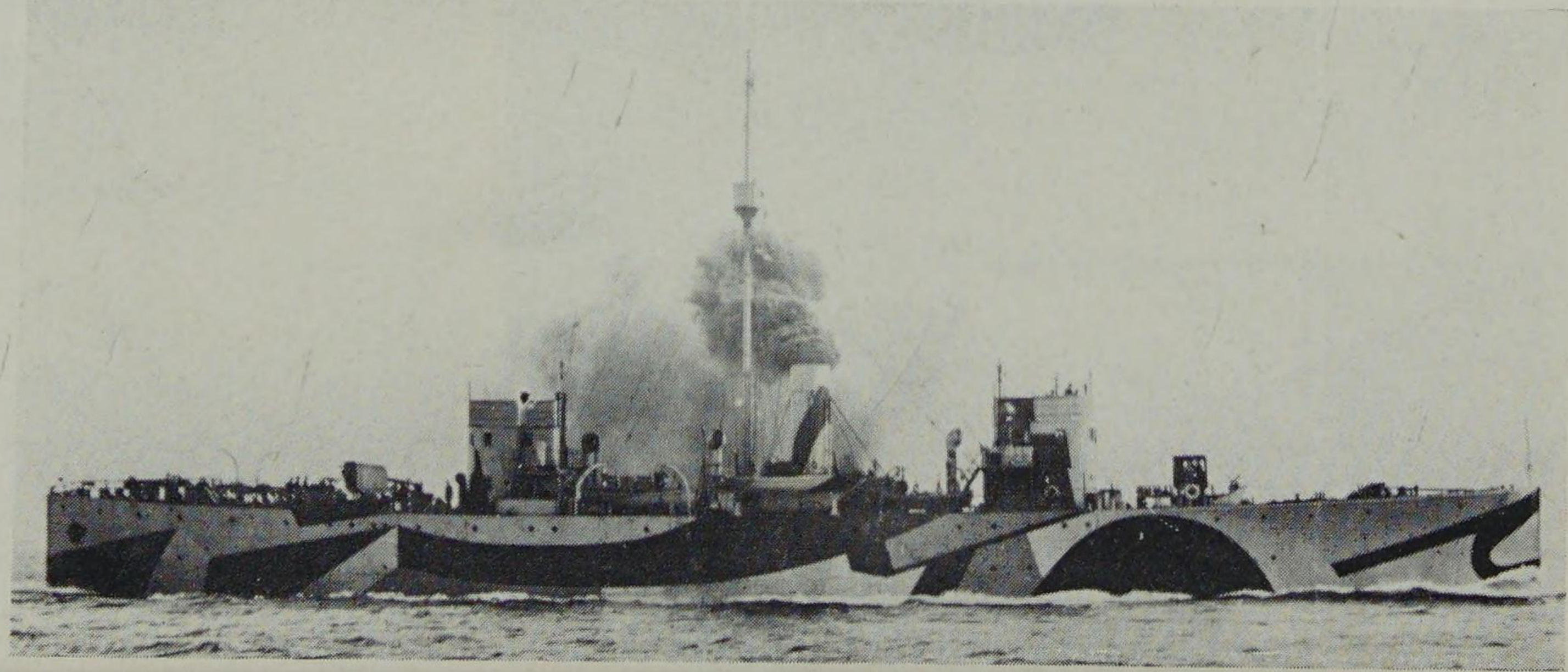
H.M.S. *Pelargonium*, Flower class Q-ship. [*I.W.M.*

Below: H.M.S. *Polyanthus*, Flower class Q-ship. [*I.W.M.*

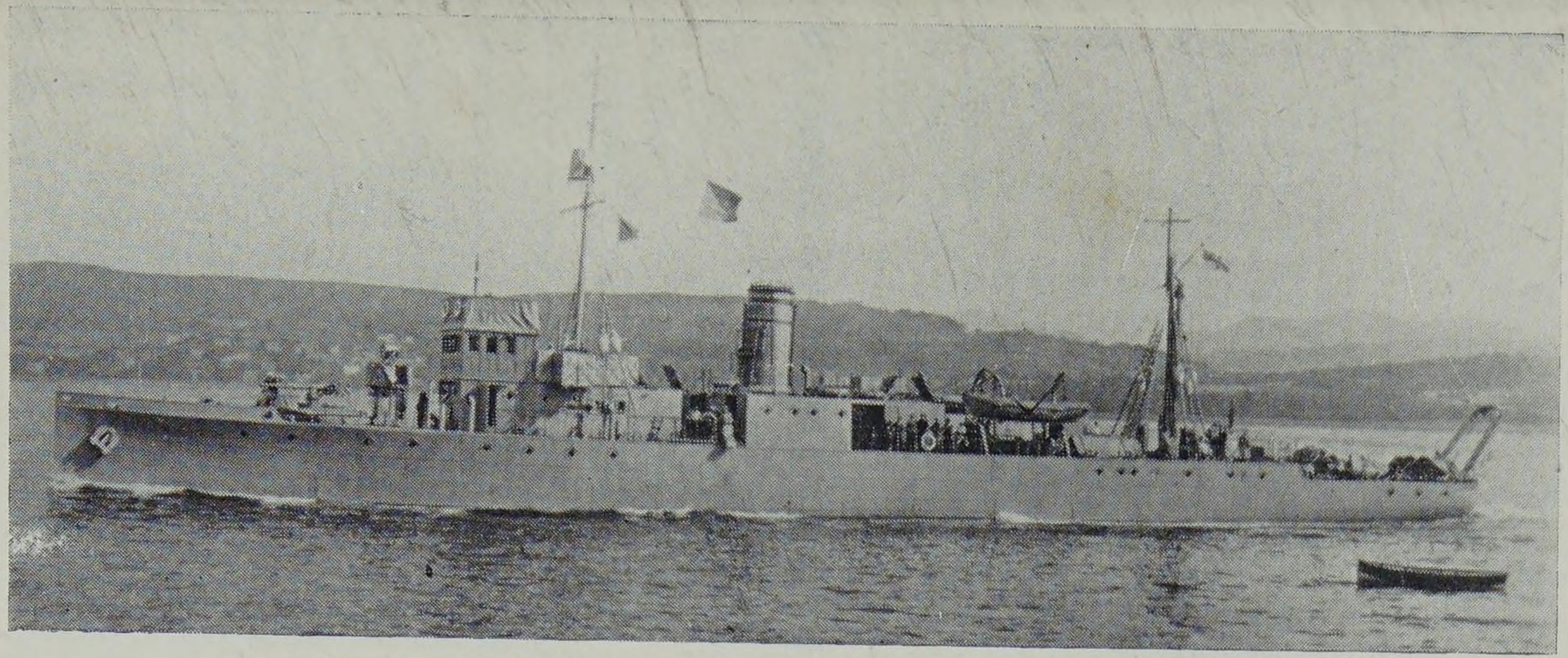




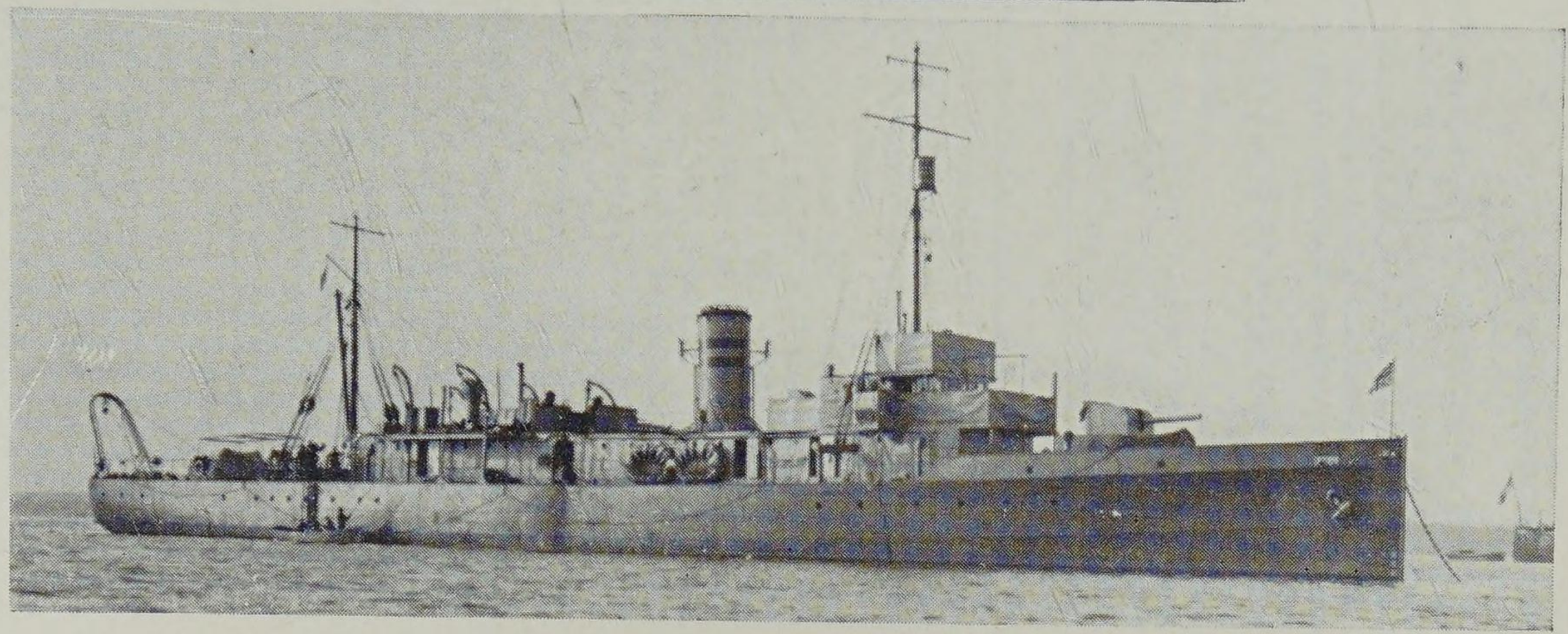
H.M.S. *Cicero*, 24 class sloop.
[*Seward*



H.M.S. *Ormonde*, 24 class sloop.
[*I.W.M.*



H.M.S. *Heythrop*, Hunt class minesweeper.



H.M.S. *Mistley*, Aberdare class minesweeper.
[*Seward*

Minesweepers

In addition to the sloops, torpedo gunboats, paddle steamers and large numbers of trawlers already adapted for minesweeping, specially built ships were introduced in World War I, when mining was practised on an enormous scale. Fleet minesweepers became a new class of warship but the paddle and tunnel minesweepers, although of wartime build, were not retained after the war.

FLEET MINESWEEPERS. EARLY HUNT CLASS All 1917

Length: 231 ft. *Beam:* 28 ft. *Displacement:* 750 tons.
Triple expansion (3-cyl.). 2 screws. 1,800 h.p. 16 knots.
Guns: 1 or 2—12 pdr. and smaller. *Complement:* 65-71.

Name		Name	
Belvoir	1922 Sold.	**Heythrop**	1922 Sold.
Bicester	1923 Sold.	**Holderness**	1924 Sold.
Blackmorevale	1918 Mined off Scotland.	**Meynell**	1922 Sold.
		Muskerry	1923 Sold.
Cattistock	1923 Sold.	**Oakley**	1923 Sold.
Cotswold	1923 Sold.	**Pytchley**	1922 Sold.
Cottesmore	1923 Sold.	**Quorn**	1922 Sold.
Croome	1922 Sold.	**Southdown**	1926 Sold.
Dartmoor	1923 Sold.	**Tedworth**	1946 Sold.
Garth	1923 Sold.	**Zetland**	1923 Sold.
Hambledon	1922 Sold.		

LATER HUNT (or ABERDARE) CLASS 1918-19

Differed from the early class in not having the hull cut away aft.
Length: 231 ft. *Beam:* 28½ ft. *Displacement:* 800-840 tons.
Triple expansion. 2 screws. 2,200 h.p. 16-17 knots.
Guns: 1—4 in., 1—12 pdr. and smaller. *Complement:* 74.

Names of ports were originally chosen for this class but they were changed to those of inland towns to avoid possible confusion in signals.

Name		Name	
Aberdare	1947 Sold at Malta	**Blackburn**	1922 Sold.
Abingdon	1942 Sunk in air attack.	**Bloxham**	1923 Sold.
		Bootle	1923 Sold.
Albury	1947 Sold, Belgian merchants.	**Bradfield**	1920 Sold.
		Burslem	1928 Sold.
Alresford	1947 Sold Belgian, merchants.	**Bury**	1923 Sold.
		Caerleon	1921 Sold.
Appledore	1920 Sold.	**Camberley**	1923 Sold.
Badminton	1928 Sold.	**Carstairs**	1935 Sold.
Bagshot	1945 Sold.	**Caterham**	1935 Sold.
Banchory	1922 Sold at Malta.	**Cheam**	1922 Sold.
Barnstaple	1921 Sold.	**Clonmel**	1922 Sold.
Battle	1923 Sold.	**Craigie**	1922 Sold at Malta.

LATER HUNT (or ABERDARE) CLASS

Name		Name	
Cupar	1919 Mined off the Tyne.	**Marlow**	1928 Sold.
Derby	1945 Sold at Gib.	**Mistley**	1928 Sold.
Dorking	1928 Sold.	**Monoghan**	1920 Sold.
Dundalk	1940 Mined off Harwich.	**Munlochty**	1922 Sold.
Dunoon	1940 Mined of Yarmouth.	**Nailsea**	1927 Sold.
Elgin	1944 Scrapped.	**Newark**	1928 Sold.
Fairfield	1920 Sold, Argentine (M.S.).	**Northolt**	1928 Sold.
Fareham	1951 Scrapped in Italy.	**Pangbourne**	1948 Scrapped.
Faversham	1927 Sold.	**Penarth**	1919 Mined off E. Coast.
Fermoy	1941 Lost in air attack.	**Petersfield**	1931 Wrecked.
Ford	1928 Sold to Merchant S.	**Pontypool**	1922 Sold at Malta.
Forfar	1922 Sold.	**Prestatyn**	1923 Sold.
Forres	1935 Sold.	**Repton**	1920 Sold.
Gaddesden	1922 Sold.	**Ross**	1949 Scrapped.
Gainsborough	1928 Sold.	**Rugby**	1927 Sold.
Goole	1926 *Irwell* drillship, sold 1949	**Salford**	1920 Sold.
Gretna	1928 Sold.	**Saltash**	1948 Scrapped.
Harrow	1950 Scrapped at Genoa.	**Saltburn**	1946 Sold and foundered.
Havant	1923 to Siam as *Chow Phraya*.	**Selkirk**	1948 Scrapped.
Huntley	1941 Sunk in air attack.	**Sherborne**	1928 Sold.
Instow	1920 Sold.	**Shrewsbury**	1927 Sold.
Irvine	1923 Sold.	**Sligo**	1922 Sold.
Kendal	1928 Sold.	**Stafford**	1928 Sold.
Kinross	1919 Mined in Aegean.	**Stoke**	1941 Sunk at Tobruk.
Leamington	1928 Sold.	**Sutton**	1947 Scrapped.
Longford	1923 Sold.	**Swindon**	1921 Sold.
Lydd	1947 Scrapped.	**Tiverton**	1939 Scrapped.
Mallaig	1927 Sold.	**Tonbridge**	1928 Sold.
Malvern	1928 Sold.	**Tralee**	1929 Sold.
Marazion	1933 Sold at Hong Kong.	**Tring**	1927 Sold.
		Truro	1928 Sold.
		Wem	1921 Sold
		Wexford	1921 Sold.
		Weybourne	1928 Sold.
		Widnes	1941 Sunk in air attack.
		Yeovil	1928 Sold.

Sister ships: 34 cancelled. Six completed as Survey Vessels: *Beaufort* (ex *Ambleside*); *Collinson* (ex *Amersham*); *Crozier* (ex *Verwood* and later *Protea*); *Fitzroy* (ex *Pinner*); *Flinders* (ex *Radley'*) and *Kellet* (ex *Uppingham*).

PADDLE MINESWEEPERS (1st Group)
All 1916

Length: 245¾ ft. *Beam:* 29 ft. (58 ft. over paddleboxes).
Inclined compound engines. 1,400 h.p. 15 knots. *Displacement:* 810 tons.
Guns: 2—12 pdr. *Complement:* 50-52.

Name		Name	
Ascot	1918 Torpedoed off Farne Is.	**Kempton**	1917 Mined near Calais.
Atherstone	1927 Sold.	**Lingfield**	1923 Sold.
Chelmsford	1927 Sold.	**Ludlow**	1916 Mined off Suffolk.
Cheltenham	1927 Sold.		
Chepstow	1927 Sold.	**Melton**	1927 Sold for Merchant service.
Croxton	1922 Sold.		
Doncaster	1922 Sold.	**Newbury**	1922 Sold.
Eglinton	1922 Sold.	**Pontefract**	1922 Sold.
Epsom	1922 Sold.	**Plumpton**	1918 Mined off Ostende
Eridge	1922 Sold.		
Gatwick	1922 Sold.	**Redcar**	1917 Mined near Calais.
Goodwood	1922 Sold.		
Haldon	1921 Sold.	**Sandown**	1922 Sold.
Hurst	1922 Sold.	**Totnes**	1922 Sold.

2nd GROUP All 1918

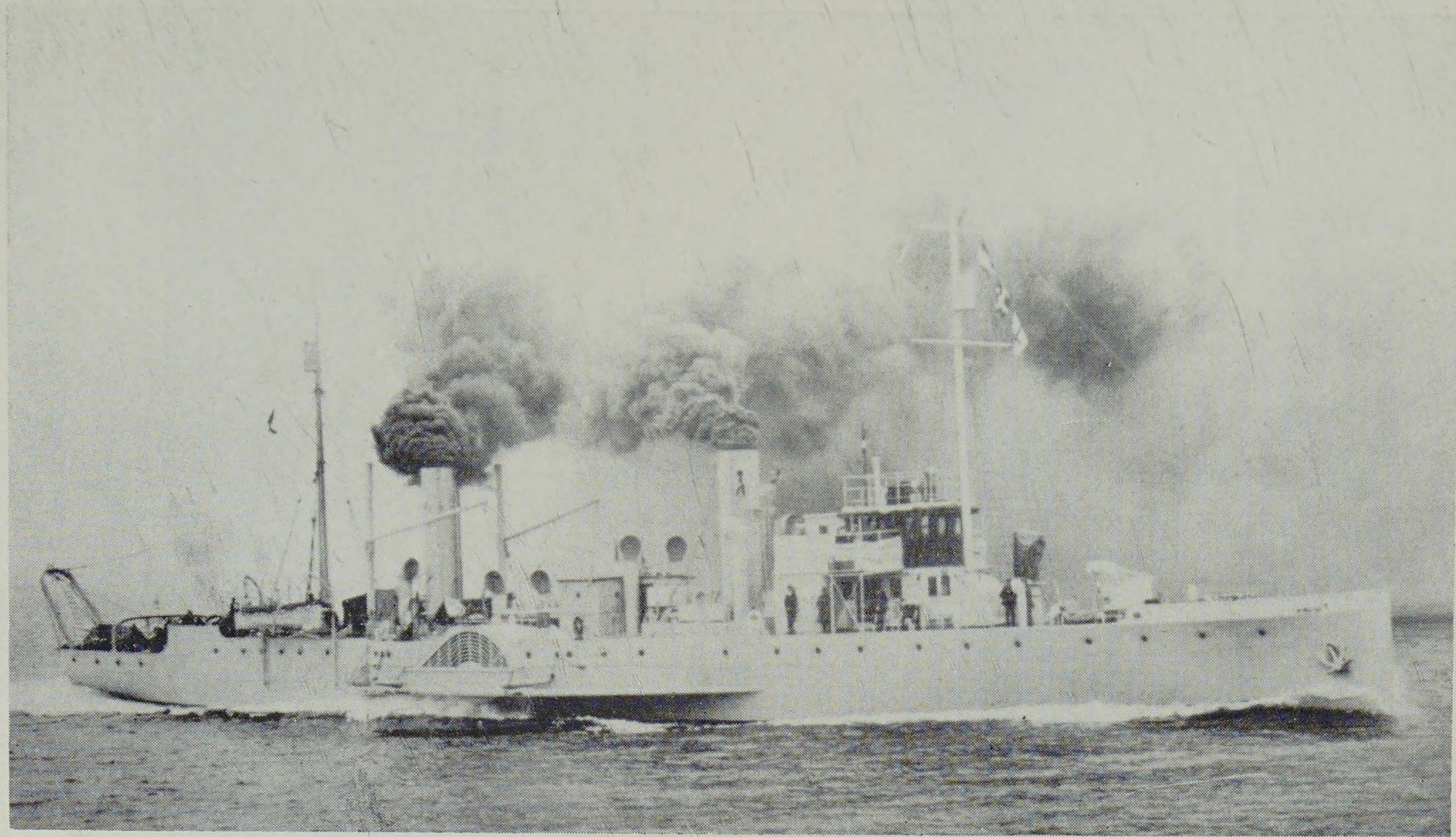
Length: 249¾ ft. *Displacement:* 820 tons. *Guns:* 1—12 pdr., 1—3 in. A.A.
Otherwise as 1st Group.

Name		Name	
Banbury	1923 Sold.	**Shincliffe**	1922 Sold.
Harpenden	1928 Sold.	**Shirley**	1919 Sold for ferry service.
Hexham	1923 Sold.		
Lanark	1923 Sold.	**Wetherby**	1924 Sold.
Lewes	1932 Sold.		

A 3rd Group on order was cancelled.

TUNNEL MINESWEEPERS (DANCE CLASS)
1917-18

Drawing only 3½ ft., these ships could work in very shallow water.
Length: 130 ft. *Beam:* 26-27 ft. *Displacement:* 265-290 tons.
Compound engines. 2 screws in tunnels. 450-520 h.p. 9-10.5 knots.
Cotillion, Coverley, Fandango, Gavotte, Hornpipe, Mazurka, Minuet, Morris Dance, Pirouette, Quadrille, Sarabande, Step Dance, Sword Dance and **Tarantella.** *Fandango* was lost on the Dvina River, N. Russia, in 1919. *Sword Dance* was mined in the Aegean in 1919 and most of the others were sold in 1920. Most of the near water minesweeping was performed by an enormous fleet of trawlers, both Admiralty and hired. Hundreds of these fine little ships were continuously employed and their losses were very high. Larger drifters were also used but many of these acted as tenders to the big ships in their more distant and exposed anchorages.



H.M.S. *Atherstone*, paddle minesweeper. [*I.W.M.*

Torpedo Gunboats

As mentioned in Part 3, these ships were the predecessors of destroyers. By 1914 the survivors had been adapted for minesweeping or subsidiary duties. At the war's end six of them formed the 13th Sweeping Flotilla based on Oban.

GOSSAMER CLASS 1892-3

Length: 230 ft. *Beam:* 27 ft. *Displacement:* 735 tons.
Triple expansion (3-cyl.). 2 screws. 3,500 h.p. 19 knots.
(Originally) *Guns:* 2—4.7 in. or smaller. *T. tubes:* 5—14 in. *Complement:* 90.
Gossamer, Seagull, Skipjack, Spanker and **Speedwell.**
Seagull was sunk in collision in 1918 in the Firth of Clyde. The others were sold in 1920. Seven other sister ships went before 1914.

ALARM CLASS 1892-3

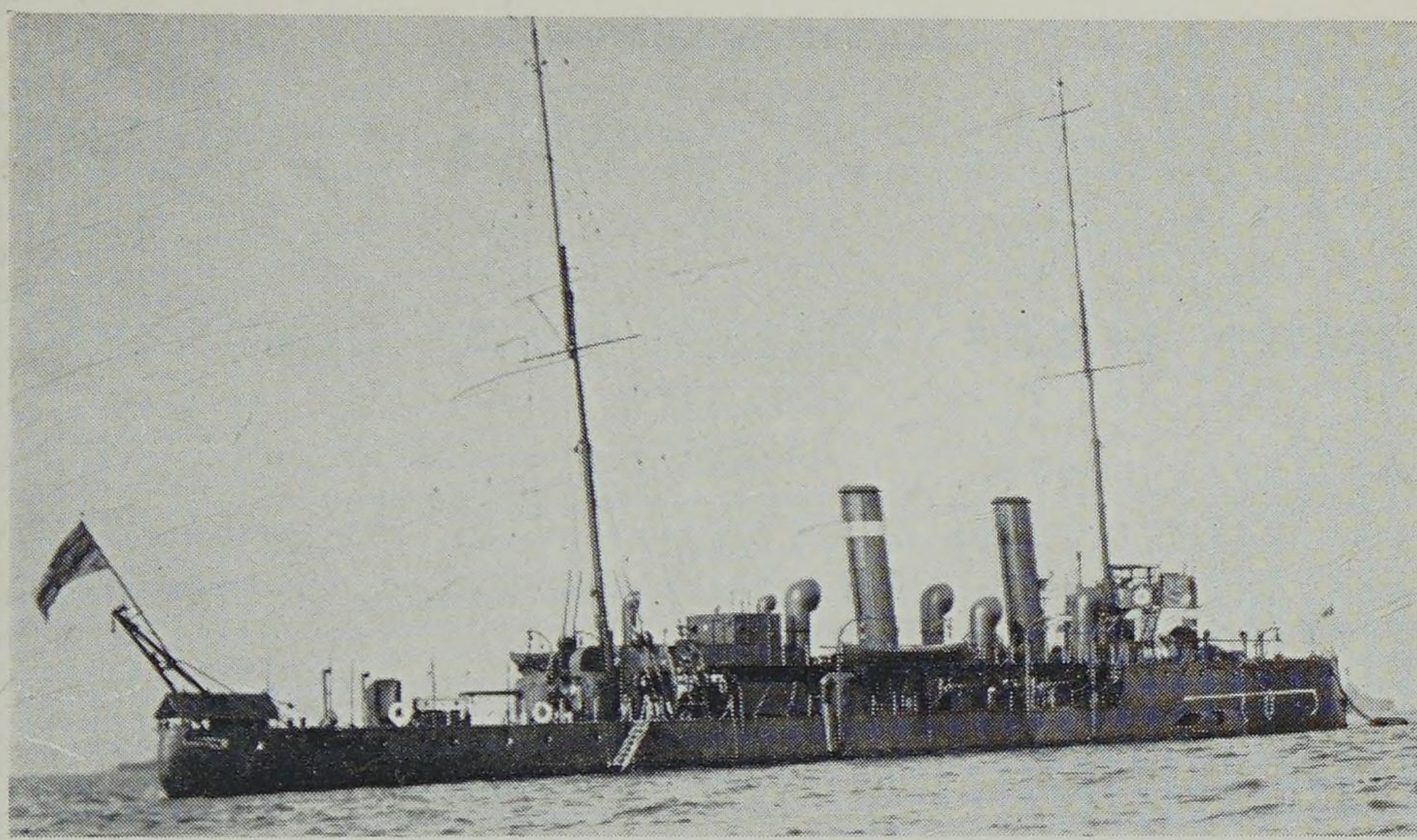
As Gossamer Class but 810 tons and some originally had 3—18 in. T. tubes.
Circe, Hebe, Jason, Leda and **Niger.**
Jason was mined off W. Scotland in 1917 and *Niger* was torpedoed in the Downs in 1914. The others were sold in 1919-20.
Alarm and two others discarded before 1914. *Onyx* was a depot ship.
As above but with three funnels instead of two.
Speedy, mined in the North Sea in 1914.

DRYAD CLASS 1893-4

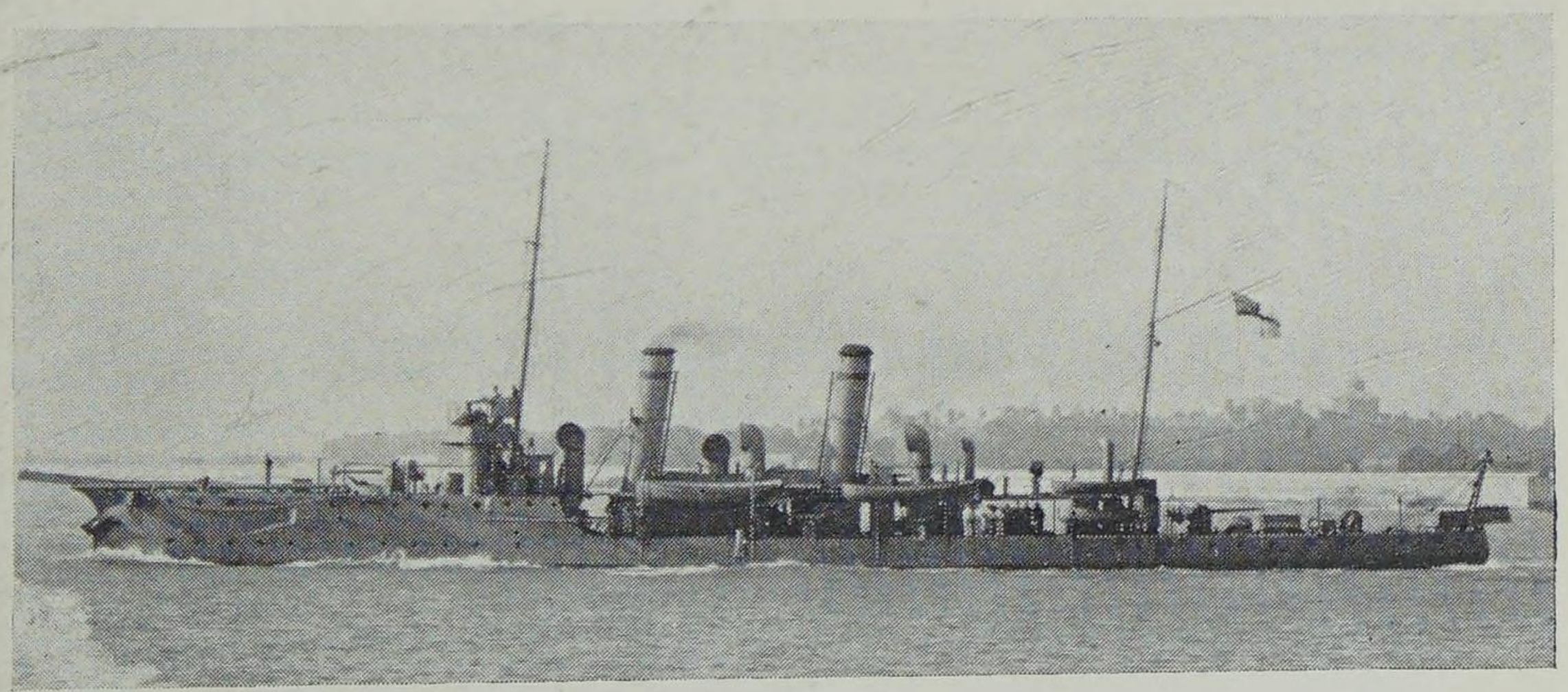
Length: 250 ft. *Beam:* 30½ ft. *Displacement:* 1,070 tons.
Triple expansion. 2 screws. 3,500 h.p. 18 knots.
(Originally) *Guns:* 2—4.7 in. and smaller. *T. tubes:* 5—18 in. *Complement:* 120.
Dryad, Halcyon, Harrier, Hazard and **Hussar.**
Hazard (as depot ship) was sunk in collision off Portland in 1918. *Dryad* (renamed *Hamadryad*), and the others were sold in 1919-20.

PATROL GUNBOATS KIL CLASS

Like the 24 Class sloops, both ends of the dazzle-painted ship were alike, thus making a plot of their course most difficult to an attacking U-boat. The shape of their hulls was reminiscent of paper boats. 85 were ordered and the first was delivered at the end of 1917.
Length: 182 ft. *Beam:* 30 ft. *Displacement:* 890 tons.
Triple expansion. 1 screw. 1,400 h.p. 13 knots.
Guns: 1—4 in. or 4.7 in. *Complement:* 39.
The following were in commision at the end of 1918:—
Kilberry, Kilbride, Kilburn, Kilcavan, Kilchattan, Kilchreest, Kilchrenan, Kilchvan, Kilclare, Kilcock, Kildalkey, Kildangan, Kildare, Kildary, Kildavin, Kildimo, Kildonan, Kildonough, Kildorrey, Kildress, Kildwick, Kildysart, Kilfenora, Kilfinny, Kilfullert, Kilgarvan, Kilgobnet, Kilham, Kilkeel, Killena, Killerig, Killiney, Killour, Killowen, Killybegs, Killygordon, Kilmalcolm.
Some of these were adapted for minesweeping. At the end of the war these ships were rapidly discarded. 51 were sold in Jan. 1920 alone, some being converted to merchant ships.



H.M.S. *Skipjack*, torpedo gunboat fitted for minesweeping. [*Seward*



H.M.S. *Speedwell*, torpedo gunboat fitted for minesweeping. [*N.P.C.*

River Gunboats

Shallow-draught ships of the next two classes were termed " China River Gunboats " or " China Gunboats " to conceal their intended use on large European and Mesopotamian rivers. They were also referred to as " River Monitors ".

INSECT CLASS (LARGE CHINA GUNBOATS) 1915-16

Length: 237½ ft. *Beam:* 36 ft. *Displacement:* 645 tons.
Triple expansion. 2 screws in tunnels. 2,000 h.p. 14 knots.
Guns: 2—6 in., 2—12 pdr. and, on some 2—3 in. A.A. *Complement:* 53-57.
Aphis, Bee, Cicala, Cockchafer, Cricket, Glowworm, Gnat, Ladybird, Mantis, Moth, Scarab and **Tarantula.**

Ten of these ships were still in service in 1939, mostly on Foreign Stations.

Ships of the " Insect " class drew 4 ft. and had twin funnels, whilst those of the " Fly " class drew 2 ft. only and had single funnels.

FLY CLASS (SMALL CHINA GUNBOATS) 1915-16

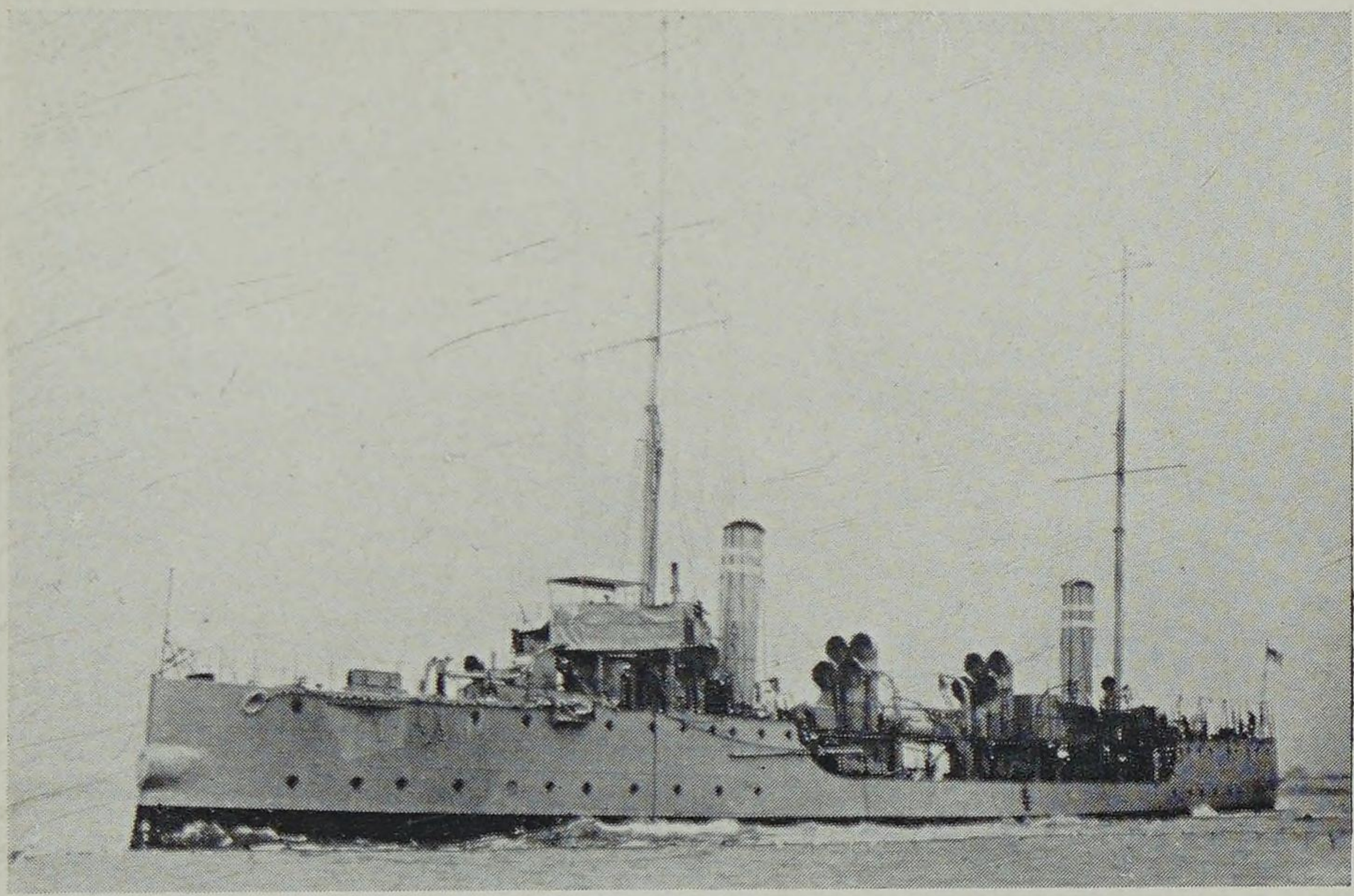
Length: 126 ft. *Beam:* 20 ft. *Displacement:* 98 tons.
Triple expansion. 1 screw in tunnel. 175 h.p. 9.5 knots.
Guns: 1—4 in., 1—12 pdr. and smaller. *Complement:* 22.
Blackfly, Butterfly, Caddisfly, Cranefly, Dragonfly, Firefly, Gadfly, Greyfly, Greenfly, Hoverfly, Mayfly, Sawfly, Sedgefly, Snakefly, Stonefly, Waterfly.

Sent out in parts, these boats were erected at Abadan. *Firefly* was captured by the Turks and recaptured in 1918. In 1918 the ships were paid off and transferred to the Army.

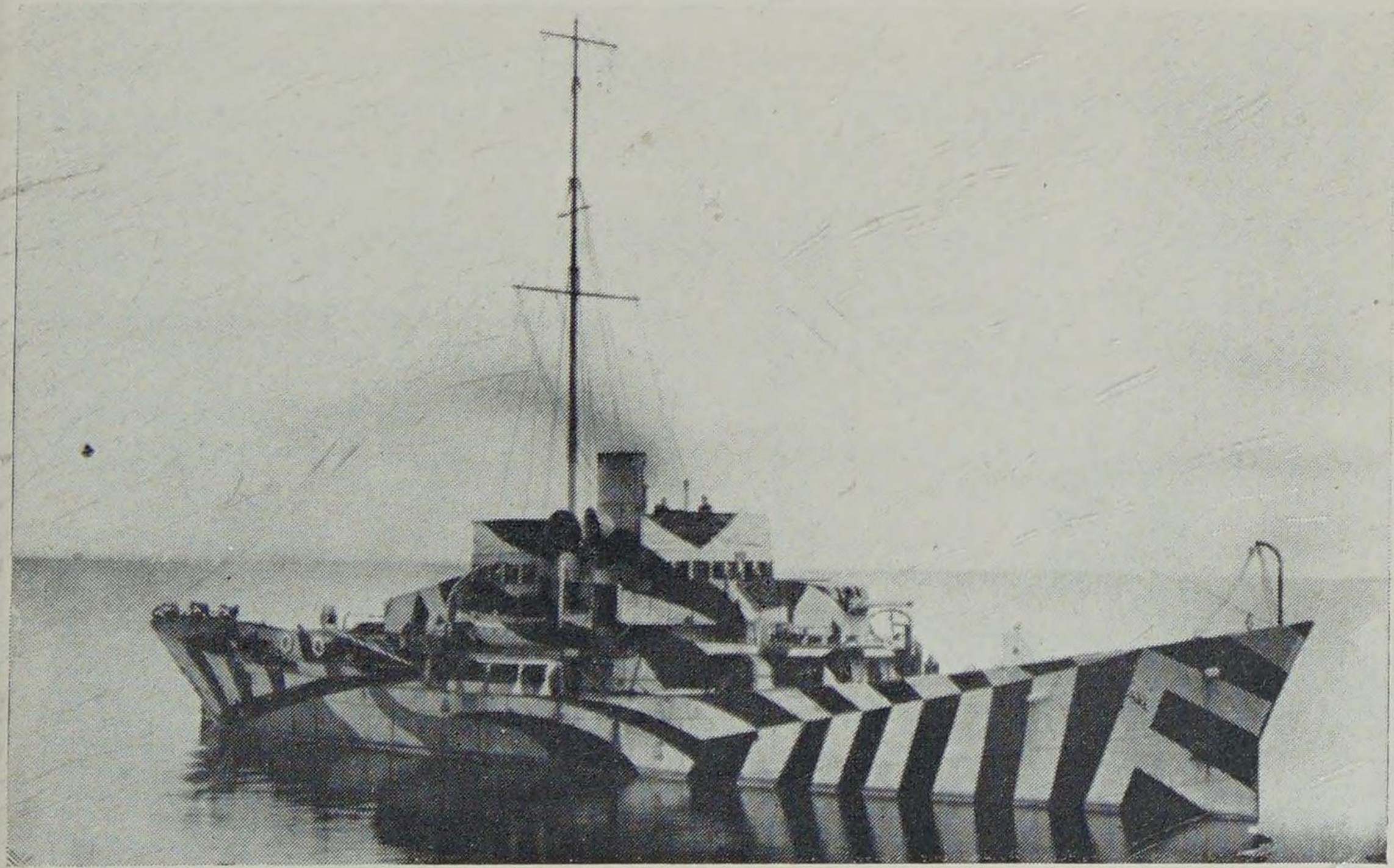
There were also 10 old River gunboats of 85-180 tons for service in China, *Kinsha, Moorhen, Nightingale, Robin, Sandpiper, Snipe, Teal, Widgeon, Woodcock* and *Woodlark.* These were sold between 1919 and 1933.

OLD GUNBOATS (and SLOOPS)

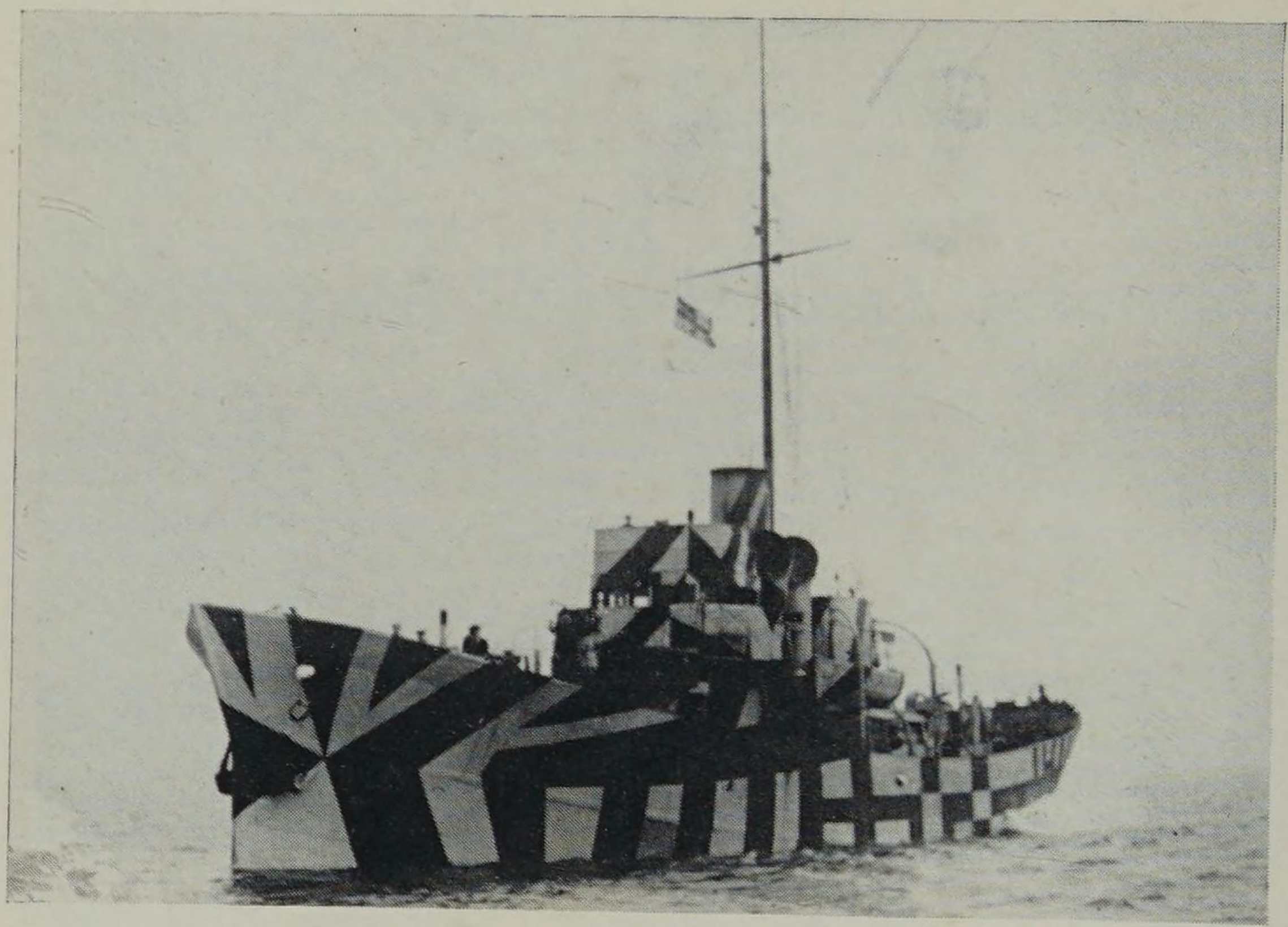
Of the once huge fleet of Victorian gunboats and sloops which patrolled the Seven Seas, only a handful remained in 1914. Employed in peacetime on distant Stations their duties were not greatly altered by the war. With cruiser sterns the most modern in appearance were:—*Bramble, Britomart, Dwarf* and *Thistle* (710 tons, 1898-9). The first two were sold in 1920 (at Bombay) and the other two in 1926. More traditional in outline were *Cadmus, Clio, Espiegle* and *Odin* (1,070 tons, 1900-3). These were sold in 1920-1, *Cadmus,* at Hong Kong and *Espiegle* at Bombay. Very similar were *Rinaldo, Rosario, Shearwater* and *Vestal* (980 tons, 1898-1900). All were sold in 1921, *Rosario* at Hong Kong and *Shearwater* in Canada. Three more ships of these two last classes were on survey work in 1914; *Fantome,* sold at Sydney in 1925; *Merlin,* sold at Hong Kong in 1923 and *Mutine* which lasted until 1932.



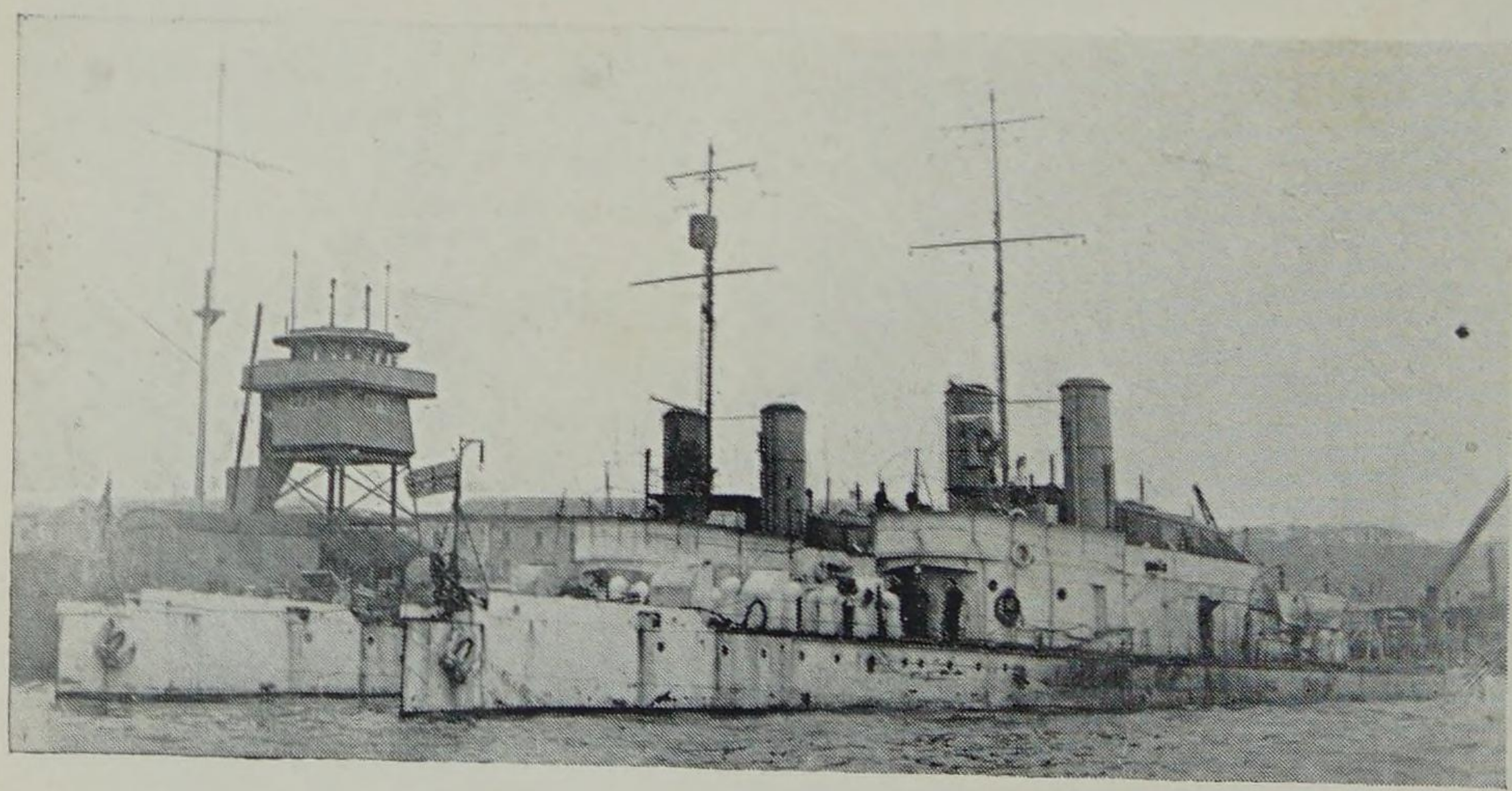
H.M.S. *Hazard*, torpedo gunboat.



H.M.S. *Kilbride*, patrol gunboat. [*I.W.M.*



H.M.S. *Killowen*, patrol gunboat. [*I.W.M.*



H.M. Ships *Mantis* and *Moth*, large China gunboats. [*N.P.C.*

German Ships

AS mentioned in the Introduction, German naval requirements were smaller and different from those of Britain. With the High Seas Fleet in home waters and activities outside these confined to U-boats, there was no need for a huge fleet of minor vessels. Even German minesweeping was confined to a comparatively small area.

AIRCRAFT CARRIERS. Since the Germans used Zeppelins and land-base aircraft, their only ships to carry seaplanes were the cruiser *Stettin* (altered for this purpose in 1918), the raider *Wolf* and the converted merchant ship *Santa Fe*, a seaplane transport of 5,342 tons gross.

DEPOT SHIPS. With the fleet based on its home ports, the need for these hips was small, such as there were being mostly conversions from old cruisers (see Part 2). Exceptions however were the specially-built *Vulkan* (1,200 tons, 1908), with arched bows through which a U-boat could enter to dock, and the *Cyclop*, (4,872 tons, 1917). *Vulkan* sank en route to Harwich in 1919 and *Cyclop* was sold for scrap in 1922.

MINELAYERS. As in the R.N., speed was necessary for successful minelaying, most of which was performed by light cruisers, destroyers and UC-boats.

There were however two specially-built minelayers:—

Nautilus (1906). *Length:* 305 ft. *Beam:* 42⅔ ft. *Displacement:* 1950 ton. 6,000 h.p. 20 knots. *Guns:* 8—3.4 in. *Mines:* 200. *Complement:* 198 Was an accommodation hulk in 1921, scrapped at Copenhagen in 1928.

Albatross (1907). *Length:* 295 ft. *Displacement:* 2,200 tons. *Mines:* 600. Otherwise as *Nautilus*. In July 1915 she was driven ashore by the Russians on a Swedish island and interned for the rest of the war.

Converted merchant ships were:—

Koenigin Luise (2,163 tons, 1913). Sunk by British ships in Aug. 1914.
Meteor (ex British S.S. *Vienna* 1,753 tons, 1905). Scuttled to avoid capture in 1915.

Four others were sunk in the Baltic by the Russians or our submarines.

ARMED MERCHANT CRUISERS. The elimination of the five most important of these is listed in Part 2 (p. 56). There were also:—

Lutzow (8,826 tons, 1908). Captured off Port Said in Aug. 1914.

Yorck (8,909 tons, 1906). Interned at Valparaiso in Dec. 1914.

Raiders

In effect these were German Q-ships with merchant vessels as the quarry instead of submarines. The adventures of three of them came as a contrast to the deadly monotony of U-boat warfare. Except *Seeadler*, they were disguised A.M.C. minelayers with added torpedo armament, whilst *Wolf* also carried a scouting seaplane named *Wolfchen* (Wolfcub). Precise classification is a matter of preference but they were primarily decoy vessels. Like the cruisers in 1914.

their nuisance value was great, diverting many ships in the search for them causing convoys to be rerouted and troop movements delayed. The most important were:—

1. **Moewe** ex S.S. *Pungo*, 4,793 tons gross, 3,200 h.p., 14 knots, *Complement:* 235. *Guns:* 4—5.9 in., 1—4.1 in. *Torpedo tubes:* 4—19.7 in. *Mines:* (c.300). First cruise: Left Hamburg Dec. 1915 disguised as a Swedish ship and sank 14 Allied ships, mostly in the South Atlantic. Other ships, including the pre-Dreadnought H.M.S. *King Edward VII*, were sunk by her mines. Returned to Hamburg March 1916. Second cruise: left Nov. 1916 and sank 20 Allied ships, also mostly in the S. Atlantic, before returning safely to Germany in March 1917.
2. **Greif** ex S.S. *Guben*, a new ship of 4,963 tons, 16 knots, *Complement:* 300. *Guns:* 4—5.9 in., 1—4.1 in. *Torpedo tubes:* 2—19.7 in. (also mines probably). Left Hamburg on 27th Feb., 1916, with orders to make for German E. Africa. Two days later she was sunk by H.M.S. *Comus* with the A.M.C's *Andes* and *Alcantara* in the North Sea. During the action she torpedoed and sank *Alcantara*.
3. **Wolf** ex S.S. *Wachtfels*, 5,809 tons gross, 1913, 10.5 knots, *Complement:* 350-380. *Guns:* 2—5.9 in., 4—4.1 in. *T. tubes:* 4. *Mines:* 465. 1 Seaplane. Left Hamburg Dec. 1916 and reached the Cape undetected a month later. Here she laid mines with immediate results and then cruised for a year in Indian Ocean, sinking at least 12 Allied ships in addition to victims of her mines. Rounded the Cape again in Dec. 1917, reaching Kiel in Feb. 1918.
4. **Seeadler** ex Sailing vessel *Pass of Balmaha*, 1,571 tons, 1888, with concealed auxiliary diesels, 10 knots, *Complement:* 64. *Guns:* 2—4.1 in. *Torpedo tubes:* 2. Left Germany Dec. 1916 disguised as the Norwegian S.V. *Irma*. The crew were selected Norwegian-speaking Germans, and so well was the disguise carried out, that the ship passed inspection by our patrols. Operating in the South Atlantic and later in the Pacific she sank 10 Allied ships before being wrecked in the Fiji Is. in Aug. 1917.
5. **Leopard** ex S.S. *Yarrowdale*, 4,652 tons gross, 1912, captured by the *Moewe* and taken to Germany. *Guns:* 5—5.9 in., 4—3.4 in. *Torpedo tubes:* 2. Left Germany March 1917 disguised as the Norwegian S.S. *Rena*. She was sunk a few days later North of the Shetlands by H.M.S. *Achilles* and the Armed Boarding Vessel *Dundee*.

Torpedo Boats

German torpedo boats may be summarised as follows:—

Group	*Total*	*Tons*	*Years built*	*Numbered*
(1)	34	85-100	1885-7	T7-T41
(2)	31	125-140	1889-94	T42-T73
(3)	8	155	1894-6	T74-T81
(4)	8	145	1897-8	T82-T89
(5)	10	250-350	1886-96	D1-D10
(6)	4	340	1915	V105-V108
(7)	25	137	1915	A1-A25
(8)	30	227	1916-7	A26-A55
(9)	35	330	1917-8	A56-A91
(10)	4	390	1918	A92-A95

Ships of groups (1) and (2) originally had locomotive type boilers but many of them had been rebuilt and by 1914 most of them had been reduced to minesweepers, tenders and harbour service vessels, much of their armament being removed. The " D's " of group (5) were built as leaders for torpedo boat flotillas and were forerunners of destroyers in size but, with the exception of D10, were too slow for destroyer work. D1-D9 had also been rebuilt and reduced to minor duties, whilst D10 was used for experiments. Group (6) were on order for Holland and taken over by the Germans. The " A's " of groups (7) to (10) were new ships of wartime construction and were some of the last traditional torpedo boats to be built.

T7 CLASS (ex S7-41) 1885-7

Length: 123¾ ft. *Beam:* 16 ft. *Displacement:* 85-95 tons.
Triple expansion. 1 screw. 800-850 h.p. 19-20.5 knots.
Guns: 1—4 pdr. *Torpedo tubes:* 3—13.7 in.
Nos. T11/3/4/5. T20/1/3/4/5/7/8/9. T30/2.
War losses: T25, T29, both by collision. **T32.**
As above but 1,100 h.p.
Nos. T33/34/5/6/7/8/9. T40.

T43 CLASS (ex S43-65) 1889-92

Length: 145-146 ft. *Beam:* 16⅓ ft. *Displacement:* 123-132 tons.
Triple expansion. 1 screw. 1,250-1,570 h.p. 20-22 knots.
Armament as T7. *Complement:* 16-24.
Nos. T43/4/5/6/7/9. T50-T65.
War losses: T43/5/7. T50/1/2/4/6/7/8/9. T64/5 (mostly mined).

T66 CLASS (ex S66-73) 1892-4

Length: 157¼ ft. *Beam:* 17¾ ft. *Displacement:* 140 tons.
Triple expansion. 1 screw. 1,600 h.p. 22 knots.
Armament as T7. *Complement:* 24.
Nos. T66-T73. War losses: T66/7/8 (all mined).

T75 CLASS (ex S75-81) 1194-6

Length: 160¾ ft. *Beam:* 17⅓ ft. *Displacement:* 152 tons.
Triple expansion (3-cyl.). 1 screw. 1,750 h.p. 22-3 knots.
Armament as T7. *Complement:* 20-24.
Nos. T75-T81. War losses: T78 (mined).
T74 was larger with T.E. (4-cyl. engine, 2,500 h.p., 23.7 knots.

T82 CLASS (ex S82-7, G88-9) 1897-8

Length: 158-159½ ft. *Beam:* 16½ ft. *Displacement:* 145 tons.
Triple expansion. 1 screw. 2,200 h.p. 25.3 knots.
Guns: 1—4 pdr. *Torpedo tubes:* 3—17.7 in. *Complement:* 24.
Nos. T82-T87.
T88-9 had T.E. (4-cyl.) engines, 2,500 h.p., 26 knots.
Survivors of the above classes were sold for scrap in 1920-21.

Nos. D1-D6 1886-9

Length: 184-195½ ft. *Beam:* 21⅔-24¼ ft. *Displacement:* 300 tons.
Triple expansion. 1 screw. 2,000-3,200 h.p. 20-22.5 knots.
Guns: 3—4 pdr. *Torpedo tubes:* 3—13.57 in. *Complement:* 49.
Nos. D1-D6. All sold 1920-21.

Nos. D7-D9 1890-1

Length: 196 ft. *Beam:* 24¼ ft. *Displacement:* 320 tons.
Triple expansion. 1 screw. 3,600 h.p. 22.5 knots.
Armament and complement as above but D9 was larger; 350 tons, 4,200 h.p., 23.5 knots, *complement:* 59.

Nos. D7-D9. All three sold 1920.

D10 1898

Length: 216¾ ft. *Beam:* 19⅔ ft. *Displacement:* 310 tons.
Triple expansion (4-cyl.). 2 screws. 5,800 h.p. 27.5 knots.
Guns: 5—4 pdr. *Torpedo tubes:* 3—17.7 in. *Complement:* 60.
Built by Thornycroft in Britain, D10 was sold in 1922.

V105 CLASS 1915

Length: 205⅓ ft. *Beam:* 20⅓ ft. *Displacement:* 340 tons.
Turbines. 2 screw. 5,670 h.p. 29.4 knots.
Guns: 2—3.4 in. or 2 in. *Torpedo tubes:* 2—17.7 in. *Complement:* 74.

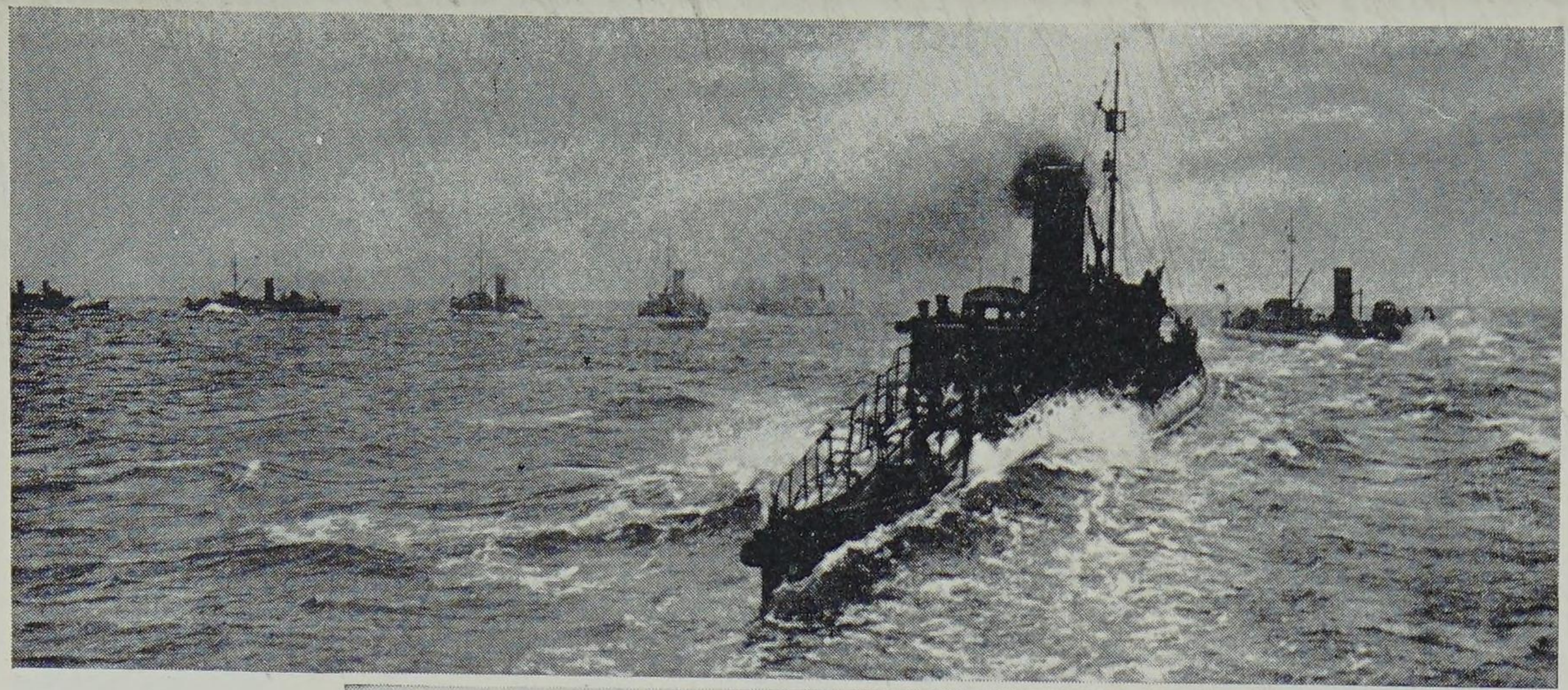
V105 1920 became Polish *Mazur*.
V106 1920 Sold for scrap.
V107 1915 Mined off Libau.
V108 1920 became Polish *Kaszub*, 1925 blew up.

Ordered as Dutch Z1-Z4. V105/6 originally allotted to Brazil.

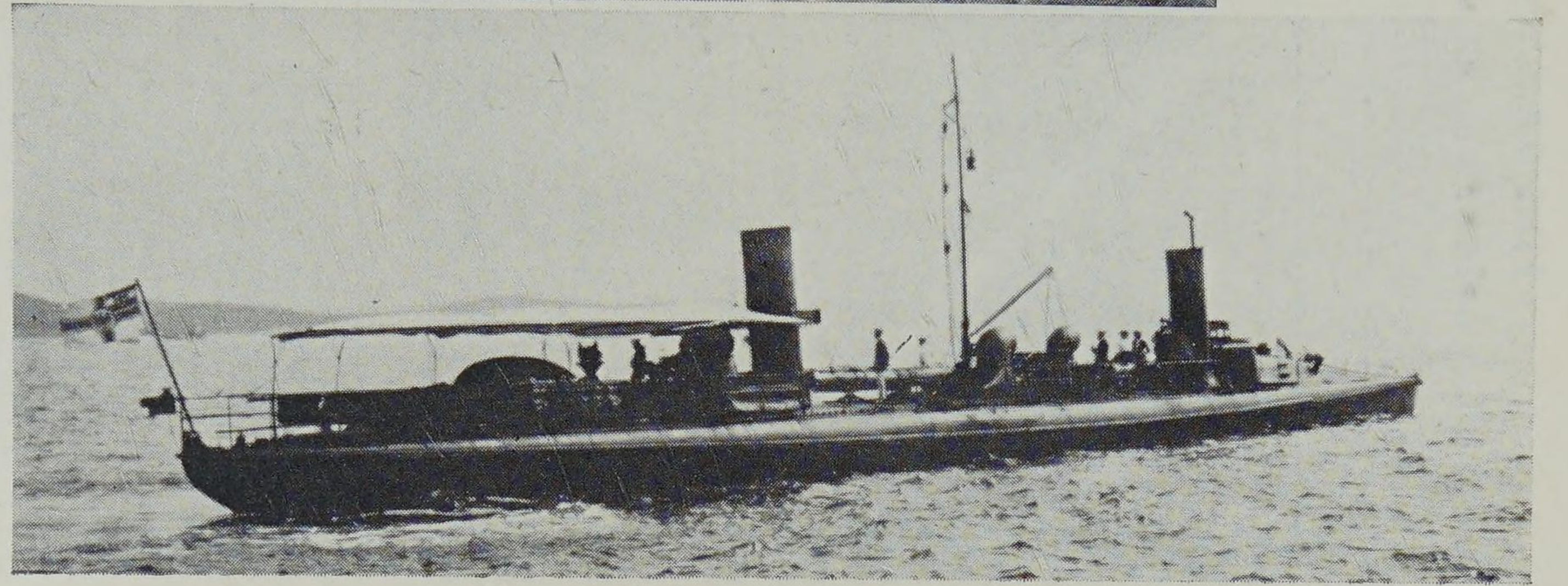
A1 CLASS 1915

Length: 136½ ft. *Beam:* 15 ft. *Displacement:* 137 tons.
Triple expansion. 1 screw. 1,200 h.p. 19 knots.
Guns: 1—2 in. *Torpedo tubes:* 2—17.7 in. *Mines:* 4. *Complement:* 29.

Number		Number	
A1	1922 Scrapped at Kiel.	**A13**	1917 Scrapped after air attack.
A2	1915 Sunk by British destroyers.	**A14**	1918 Became Belgian A1PC.
A3	1915 Lost without trace.	**A15**	1915 Sunk by Brit. destroyers.
A4	1918 Scuttled at Antwerp.	**A16**	1918 Became Belgian A8PC.
A5	1918 Became Belgian A4PC.	**A17**	1922 Scrapped at Kiel.
A6	1915 Sunk by British destroyers.	**A18**	1922 Scrapped at Kiel.
A7	1918 Sunk by British destroyers.	**A19**	1918 Sunk by Brit. destroyers.
A8	1918 Became Belgian A5PC.	**A20**	1918 Became Belgian A9PC.
A9	1918 Became Belgian A6PC.	**A21**	1921 Scrapped.
A10	1918 Mined off Flanders.	**A22**	1922 Kiel Harbour service.
A11	1918 Became Belgian A7PC.	**A23**	1924 Target service.
A12	1918 Became Belgian A2PC.	**A24**	1922 Swinemunde Harbour service.
		A25	1922 Kiel Harbour service.



German Torpedo Boats of Group T7-T81.



German Torpedo Boat T85.
[*N.M.M. Greenwich*

A26 CLASS 1916-17

Length: 164 ft. *Beam:* 17½ ft. *Displacement:* 227 tons.
Geared turbines. 1 screw. 3,500 h.p. 25.8 knots.
Guns: 2—3.4 in. *Torpedo tubes:* 1—17.7 in. *Complement:* 35.

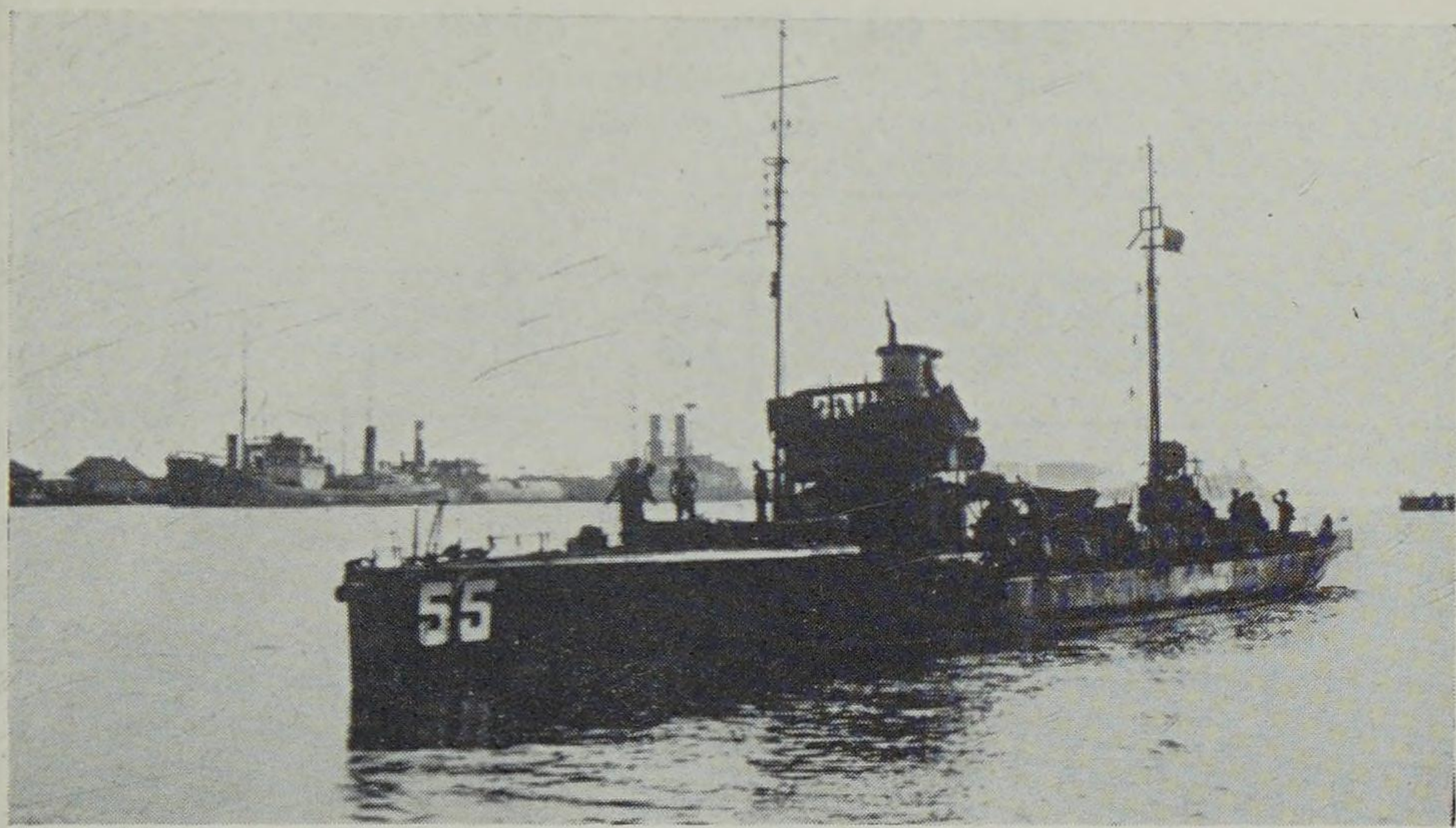
Number		Number	
A26	1921 Scrapped at Kiel.	**A41**	1922 Scrapped in U.K.
A27	1922 Scrapped in U.K.	**A42**	1918 Became Belgian A23PC.
A28	1922 Scrapped in U.K.	**A43**	1918 Became Belgian A24PC.
A29	1923 Scrapped in U.K.	**A44**	1922 Scrapped in U.K.
A30	1918 Became Belgian A21PC.	**A45**	1922 Scrapped in U.K.
A31	1923 Scrapped in U.K.	**A46**	1923 Scrapped in U.K.
A32	1917 Stranded, 1924 Estonian.	**A47**	1918 Became Belgian A25PC.
A33	1923 Scrapped in U.K.	**A48**	1922 Scrapped in U.K.
A34	1923 Scrapped in U.K.	**A49**	1923 Scrapped in U.K.
A35	1922 Scrapped in U.K.	**A50**	1917 Mined in North Sea.
A36	1922 Scrapped in U.K.	**A51**	1918 Scuttled in Adriatic.
A37	1923 Scrapped in U.K.	**A52**	1923 Scrapped in U.K.
A38	1923 Scrapped in U.K.	**A53**	1923 Scrapped in U.K.
A39	1922 Scrapped in U.K.	**A54**	1923 Scrapped in U.K.
A40	1918 Became Belgian A22PC.	**A55**	1923 Scrapped in U.K.

A56 CLASS 1917-18

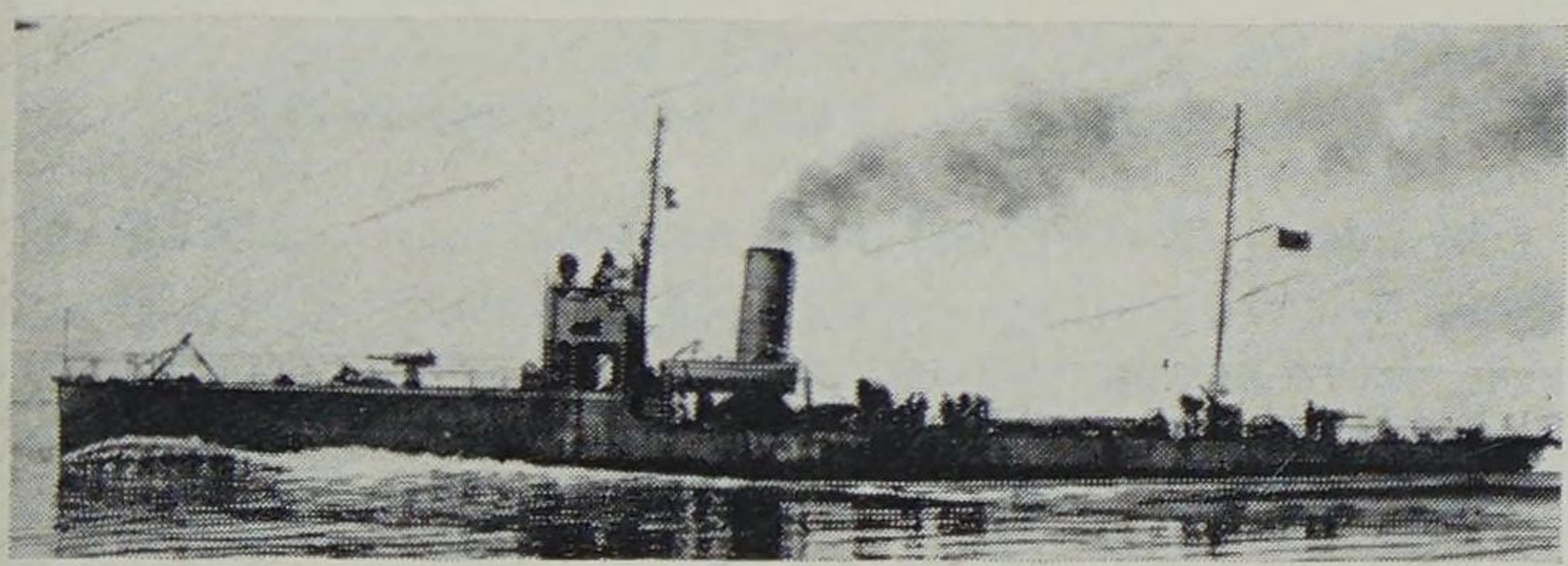
Length: 197-200½ ft. *Beam:* 21 ft. *Displacement:* 330-335 tons.
Turbines (some geared). 2 screws. 6,000 h.p. 26.5-28.2 knots.
Armament as A26 but A80 had 3—3.4 in. guns and no torpedo tubes.

Number		Number	
A56	1918 Mined in North Sea.	**A73**	1918 Mined in North Sea.
A57	1918 Mined in North Sea.	**A74**	1922 Scrapped in U.K.
A58	1918 Mined off Flanders coast.	**A75**	1920 Scrapped in U.K.
A59	1921 Became Polish *Slazak*.	**A76**	1920 Scrapped in U.K.
A60	1917 Mined off Flanders coast.	**A77**	1918 Mined in North Sea.
A61	1923 Scrapped in U.K.	**A78**	1922 Scrapped in U.K.
A62	1923 Scrapped in U.K.	**A79**	1918 Mined in North Sea.
A63	1920 Scrapped in U.K.	**A80**	1922 Became Polish *Podhalanin*
A64	1921 Became Polish *Krakowiak*	**A81**	1921 Scrapped in U.K.
A65	1922 Scrapped in U.K.	**A82**	1918 Scuttled in Adriatic.
A66	1920 Scrapped in U.K.	**A86**	1920 Scrapped in U.K.
A67	1921 Scrapped at Hamburg.	**A87**	1922 Scrapped in U.K.
A68	1921 Became Polish *Kijawiak*.	**A88**	1923 Scrapped in U.K.
A69	1922 Scrapped in U.K.	**A89**	1923 Scrapped in U.K.
A70	1922 Scrapped in U.K.	**A90**	1922 Scrapped in U.K.
A71	1918 Mined in North Sea.	**A91**	1922 Scrapped in U.K.
A72	1918 Mined in North Sea.		

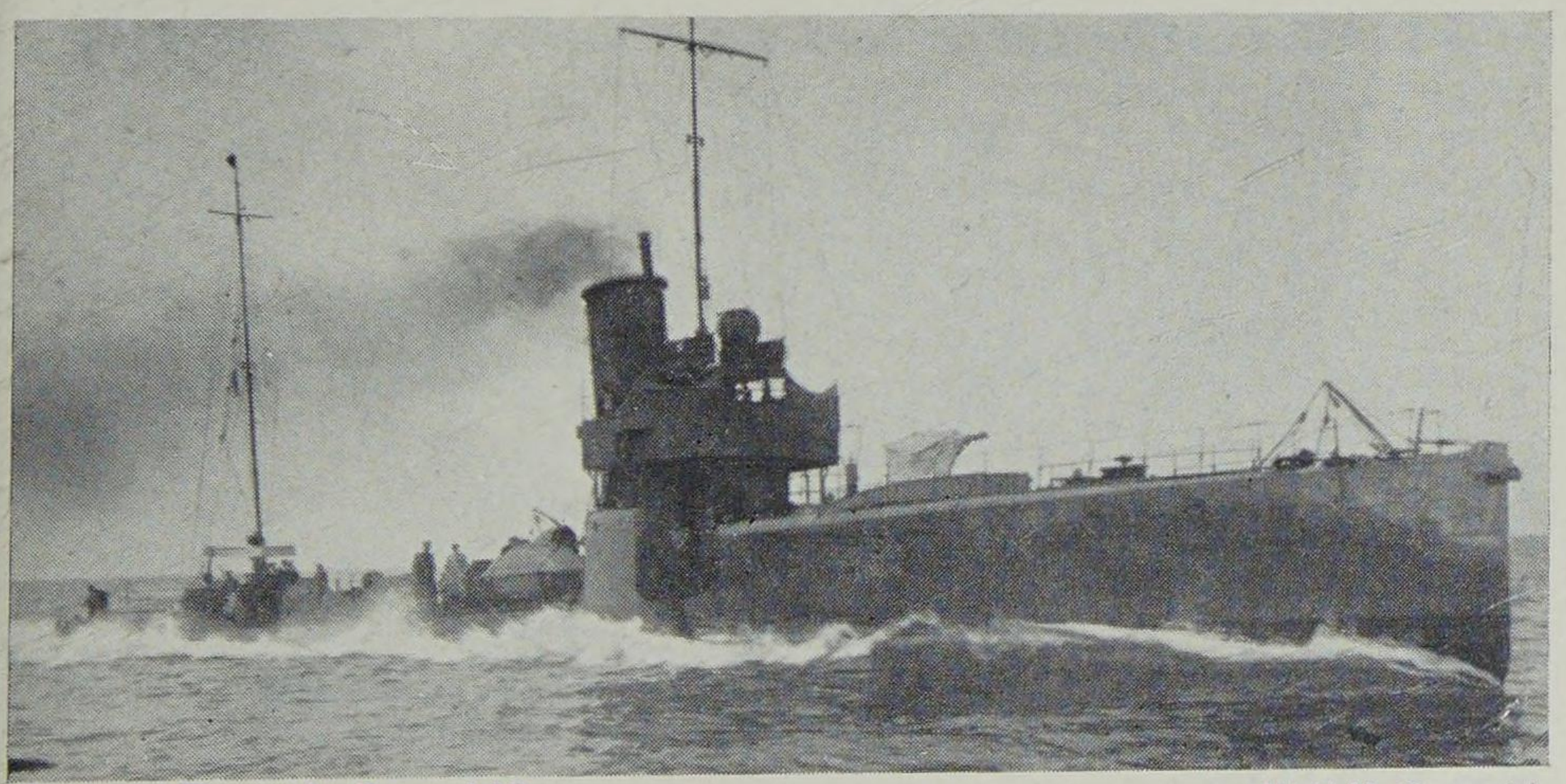
A83-85 were scrapped uncompleted at Kiel in 1921.



German Torpedo Boat A55. [N.M.M. Greenwich



German Torpedo Boat A56.
[N.M.M. Greenwich



German Torpedo Boat A68. [N.M.M. Greenwich

A92 CLASS 1918

Length: 200¾ ft. *Beam:* 21 ft. *Displacement:* 392 tons.
Geared turbines. 2 screws. 6,000 h.p. 26.7 knots.
Armament and complement as A26.

Number		Number	
A92	1923 Scrapped in U.K.	**A94**	1923 Scrapped in U.K.
A93	1922 Scrapped in U.K.	**A95**	1923 Scrapped in U.K.

A96-A113 were never completed.

Coastal Craft

F SERIES (Motor Patrol Boats) 1915

Length: 54 ft. *Beam:* 13 ft. *Displacement:* 18 tons.
Petrol engines. 2 screws. 130 h.p. 10-11 knots.
Torpedo tube: 1—17.7 in. (on deck). *Mines:* 6.

Nos. F1-F15.

As above but *Length:* 57⅓ ft., *Displacement:* 19 tons.

Nos. F16-F75.

War losses F,9 F32. F16/7/8, 20, 30/3/5/6, 40/8, 56/7 became Belgian V1-V12. Others converted to police or harbour boats. Remainder scrapped 1920.

LM SERIES (Motor Torpedo Boats) 1917-8

Length: 48-56 ft. *Beam:* 7½-8⅓ ft. *Displacement:* 15-17 tons.
Petrol engines. 3 screws. 630-720 h.p. 28-32 knots.
Torpedo tube: 1—17.7 in. (fixed).

Nos. LM1-23, 27, 28. (LM24-6, 29-33 not completed.)

LM1, 2 burnt out 1918. LM3-19 were intended for the Adriatic. Most of them were sold from 1926 onward, four of them to Colombia in 1933.

FL SERIES (Motor Launches) 1915-16

Length: 42⅔ ft. *Beam:* 6 ft. *Displacement:* 6 tons.
Petrol engines. 2 screws. 420 h.p. 30 knots.

Nos. FL1-FL17. War losses: FL3, 4, 5, 8, 14.

UZ SERIES (Motor Anti-Submarine Boats)

UZ 1A GROUP 1916-17

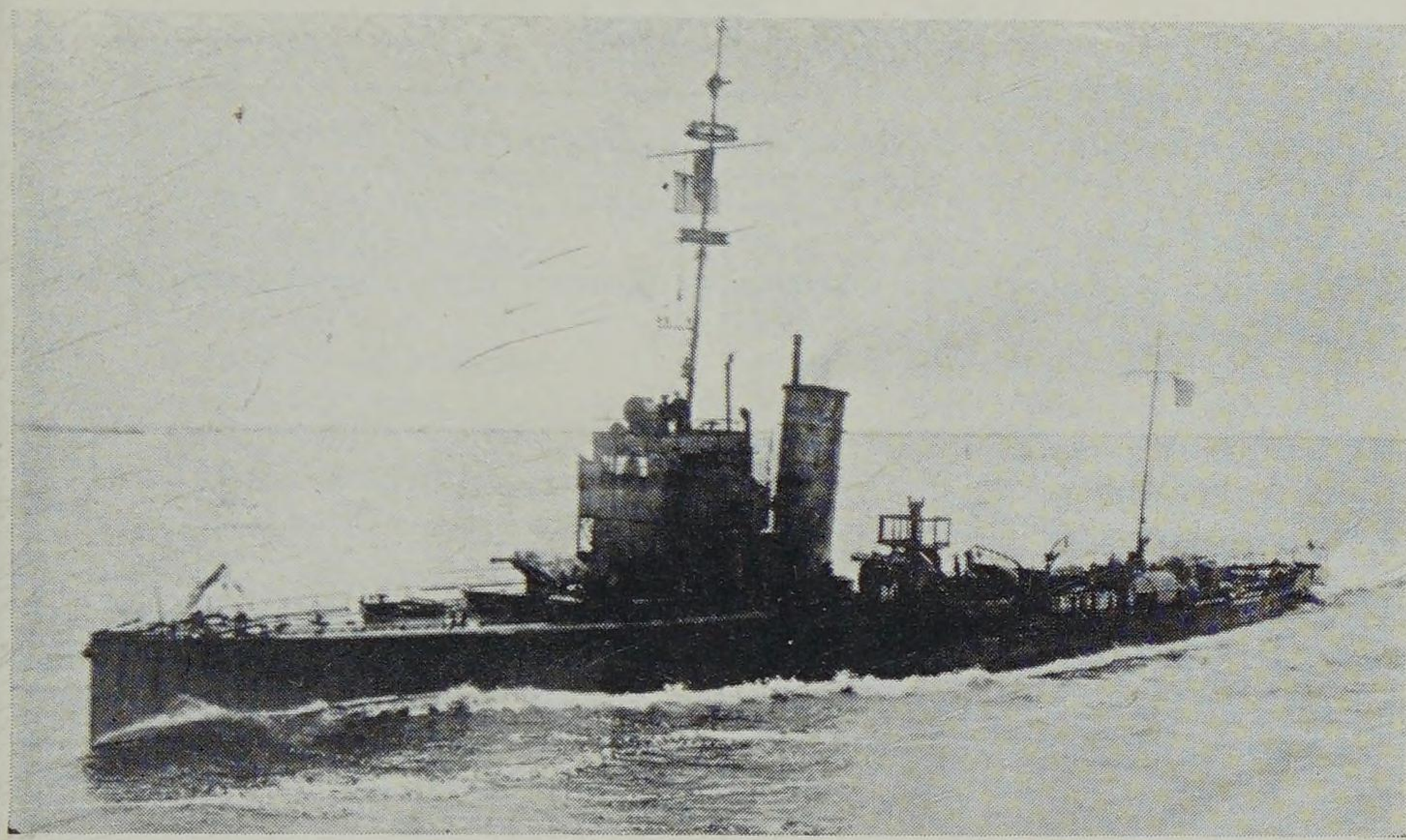
Length: 57½-70¾ ft. *Beam:* 10½-13 ft. *Displacement:* 27 tons.
Petrol engines. 2 screws. 120-360 h.p. 10-17.4 knots.

Nos. UZ1A-UZ12A.

UZ1 CLASS 1917

Length: 85⅓-90¼ ft. *Beam:* 12¾-14 ft. *Displacement:* 40-44 tons.
Petrol engines. 2 screws (UZ11,3). 420-640 h.p. 14-15 knots.

Nos. UZ1-UZ22.



German Torpedo Boat A92. [N.M.M. Greenwich

German minesweeper M134. [N.M.M. Greenwich

UZ23 CLASS

As before but *Length:* 197 ft. *Beam:* 14½ ft., *Displacement:* 60 tons and 1—2 in. gun.

Nos. UZ23-UZ35.

UZ ships were sold for police, harbour or pleasure craft or scrapped. A few were retained.

Minesweepers

The ' M ' series were the German equivalent of our Fleet Minesweepers but could also carry 30 or more mines for laying if required. The ' FM ' series were shallow draught minesweepers which proved to be somewhat unstable, whilst their fuel supply was inadequate.

M1 CLASS 1915

Length: 180¾ ft. *Beam:* 24 ft. *Displacement:* 425 tons.
Triple expansion. 2 screws. 1,400 h.p. 16.5 knots.
Guns: 2—3.4 in. *Complement:* 40.

Number		Number	
M1	1922 Scrapped.	**M4**	1922 Sold.
M2	1922 Sold.	**M5**	1922 Sold.
M3	1922 Sold.	**M6**	1918 Mined in North Sea.

M7 CLASS 1915

As M1 but *Length:* 185 ft., *Displacement:* 450 tons, 1,600 h.p.

Number		Number	
M7	1922 Scrapped.	**M17**	1920 Sold.
M8	1922 Scrapped.	**M18**	1922 Scrapped.
M9	1917 Mined in North Sea.	**M19**	1922 Scrapped.
M10	1922 Sold for merchant service	**M20**	1921 Sold.
M11	1917 Mined in North Sea.	**M21**	1922 Scrapped.
M12	1916 Mined in North Sea.	**M22**	1918 Mined in North Sea.
M13	1920 Sold.	**M23**	1917 Mined in North Sea.
M14	1917 Mined in North Sea.	**M24**	1917 Mined in North Sea.
M15	1917 Mined in North Sea.	**M25**	1922 Scrapped.
M16	1917 Torpedoed in North Sea.	**M26**	1917 Mined in North Sea.

M27 CLASS 1916

As M1 but *Length:* 191⅔ ft., 480 tons, 1,800 h.p. and 2—4.1 in. guns.

Number		Number	
M27	1916 Sunk, collision in Baltic.	**M36**	1918 Mined in North Sea.
M28	Kept, (1929 *Pelikan*).	**M37**	1922 Scrapped.
M29	1921 Sold.	**M38**	1922 Discarded.
M30	1921 Sold.	**M39**	1918 Mined in North Sea.
M31	1917 Mined in Baltic.	**M40**	1918 Mined in North Sea.
M32	1922 Scrapped.	**M41**	1918 Mined in North Sea.
M33	1922 Sold.	**M42**	1920 Sold as passenger tender.
M34	1922 Scrapped.	**M43**	1922 Sold.
M35	1922 Sold.	**M44**	1922 Sold.

As above but with 3—3.4 in. guns.

M45	1922 Sold.	**M52**	1921 To Argentine as M3.
M46	1922 Discarded.	**M53**	1921 To Argentine as M4.
M47	1917 Mined in North Sea.	**M54**	1922 Sold.
M48	1921 To Argentine as M1.	**M55**	1917 Wrecked off Schleswig coast.
M49	1917 Mined in North Sea.	**M56**	1917 Mined in North Sea.
M50	Kept.		
M51	1921 To Argentine as M2.		

M57 CLASS 1917-21

Length: 194½ ft. *Beam:* 24¼ ft. *Displacement:* 500-525 tons.
Triple expansion. 2 screws. 1,850 h.p. 16 knots.
Guns: 2 or 3—3.4 in. or 4.1 in. *Complement:* 40.

Number		Number	
M57	1922 Accommodat'n ship, Kiel.	**M76**	1922 Scrapped.
M58	1922 Scrapped.	**M77**	1922 Sold.
M59	1922 to Lithuania.	**M78**	1922 Sold.
M60	Kept.	**M79**	1921 To Argentine as M6.
M61	Kept.	**M80**	1921 To Argentine as M7.
M62	1918 Mined in North Sea.	**M81**	Kept (1929 *Nautilus*).
M63	1917 Mined in North Sea.	**M82**	Kept (1929 *Jagd*).
M64	1918 Mined in North Sea.	**M83**	Mined in North Sea.
M65	1922 Scrapped	**M84**	Kept.
M66	Kept.	**M85**	Kept.
M67	1918 Mined in North Sea.	**M86**	1922 Scrapped.
M68	1922 To Latvia as *Virsatis*.	**M87**	1922 Sold.
M69	1922 Sold.	**M88**	1922 Sold.
M70	1922 Sold.	**M89**	Kept.
M71	1922 Sold.	**M90**	1921 To Argentine as M8.
M72	Kept.	**M91**	1918 Mined in North Sea.
M73	1922 Sold.	**M92**	1918 Mined in North Sea.
M74	1921 To Argentine as M5.	**M93**	1922 Sold.
M75	Kept.	**M94**	1922 Sold.

M57 CLASS

Number		Number	
M95	1918 Mined in North Sea.	**M121**	1921 to Jugoslavia as *Kobatz*.
M96	1922 Discarded.	**M122**	Kept.
M97	1921 To Jugoslavia as *Orao*.	**M125**	1920 prison ship.
M98	Kept.	**M126**	Kept.
M99	1922 Scrapped.	**M129**	Kept.
M100	1921 To Jugoslavia as *Galeb*.	**M130**	Kept (1928 *Fuchs*).
M101	1921 To Argentine as M9.	**M131**	1919 Sold to Uruguay.
M102	Kept.	**M132**	Kept.
M103	1922 Sold.	**M133**	Kept (1928 *Wacht*).
M104	Kept.	**M134**	Kept (1928 *Frauenlob*).
M105	1921 To Argentine as M10.	**M135**	Kept (1923 *Hela*).
M106	1921 To Jugoslavia as *Labud*.	**M136**	Kept.
M107	Kept.	**M137**	1922 Scrapped.
M108	Kept (1928 *Delphin*).	**M138**	Kept (1934 *Zeiten*).
M109	Kept.	**M139**	1919 Sold for merchant service
M110	Kept.	**M140**	1919 Sold for merchant service
M111	Kept.	**M144**	1921 To Jugoslavia as *Sokol*.
M112	1921 To Jugoslavia as *Jastreb*.	**M145**	Kept.
M113	Kept (1936 *Acheron*).	**M146**	Kept (1933 *Taku*).
M114	1919 Sold for merchant service	**M147**	1919 Sold for merchant service
M115	Kept (1935 *Arkona*).	**M150**	1920 Sold for merchant service
M116	1920 prison ship.	**M151**	1919 Sold for merchant service
M117	Kept.	**M152**	1919 Sold for merchant service
M118	1922 Sold.	**M157**	Kept.
M119	1919 To Italy as *Meteo*.	**M158**	1919 Sold to France (M.S.).
M120	1919 To Italy as *Abastro*.		

M123/4/7/8, 140-143/8/9, 153-156/9-176 were not completed or were cancelle d As minesweeping was a necessary peacetime activity, construction and retention of these ships continued after the armistice.

FM1 CLASS 1917-18

Length: 141 ft. *Beam:* 19¾ ft. *Displacement:* 193 tons.
Triple expansion. 2 screws. 600 h.p. 14 knots.
Guns: 1—3.4 in.

Nos. FM1-FM36.

FM2, 27, 28, 31 went to Poland in 1920 and FM24 to Persia. Others sold 1919 onward, many being converted for merchant service.

FM37 CLASS 1918-19

As above but *Length:* 149¼ ft., *Displacement:* 205 tons, 750 h.p., 14.3 knots.

Nos. FM37-66.

Sold from 1919 onward.

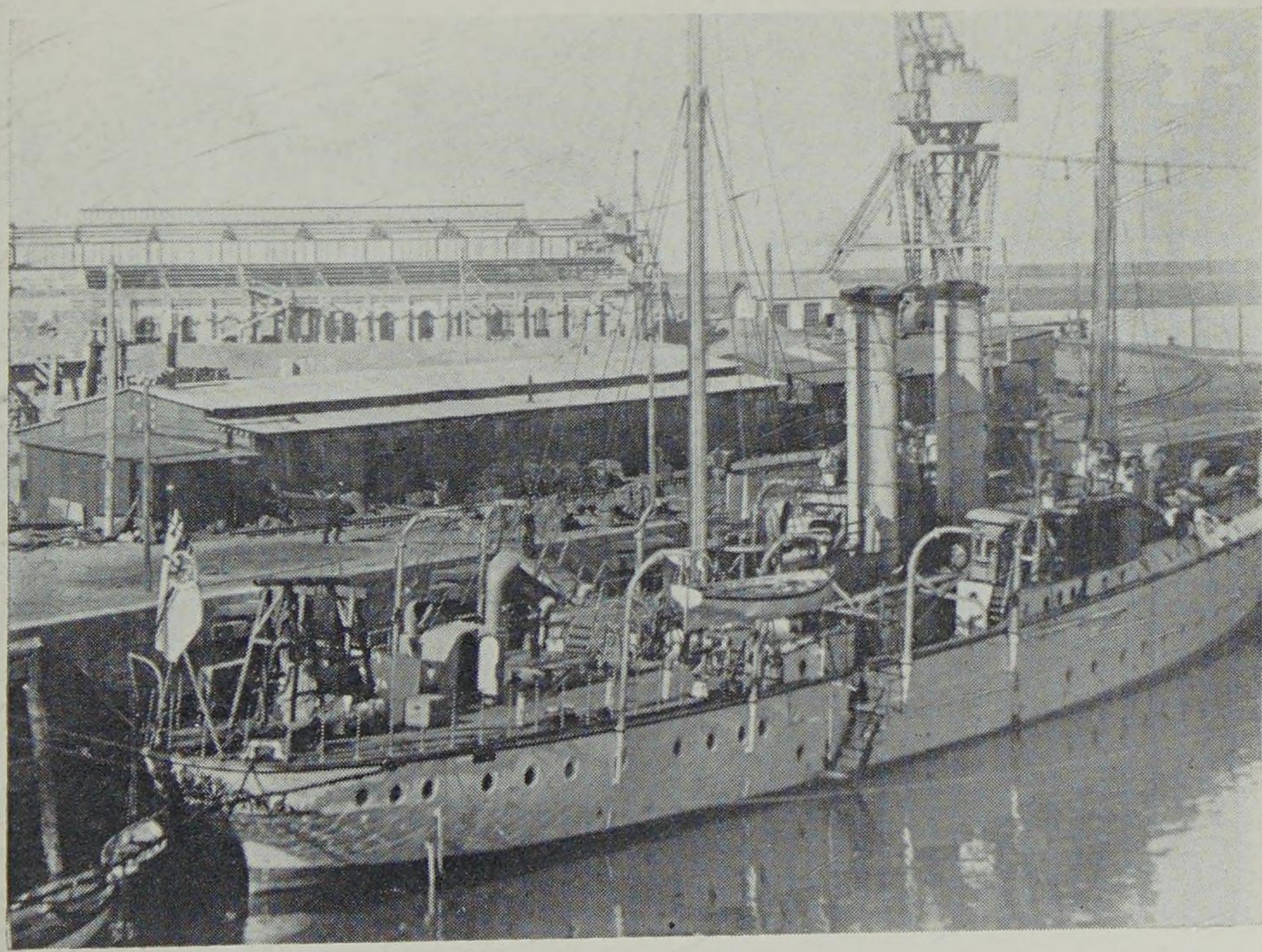
Note. German Admiralty Trawler-minesweepers. Averaging 250 tons gross, about 100 were built by the small shipyards to a broad general specification. Some 30 were sunk and most of the remainder were sold to German trawler owners.

Gunboats

Length: 210½ ft. *Beam:* 31¾ ft. *Displacement:* 900-1,000 tons.
Triple expansion. 2 screws. 1,350 h.p. 14 knots.
Guns: 2—4.1 in or 15½ pdr. and smaller. *Complement:* 125.
Eber (1903), **Iltis** (1898), **Jaguar** (1898), **Luchs** (1899), **Panther** (1901) and **Tiger** (1899). *Eber* was interned in Brazil in 1914, *Panther* became a Survey ship in 1921 and was sold in 1931, and the other four were all scuttled at Tsingtao in 1914.

RIVER GUNBOATS. *Otter* (260 tons, 1909), *Tsingtau* and *Vaterland* (both 168 tons, 1903). All three were interned in China in 1914. In 1917 *Tsingtau* was blown up to avoid seizure but the other two were taken over by the Chinese.

OLD SLOOPS. *Condor*, *Cormoran*, *Geier*, *Seeadler* (1,700 tons, 1892-4). *Cormoran* was sunk at Tsingtao in 1914 and *Geier* was interned at Honolulu. *Seeadler* was blown up in 1917 and *Condor* sold in 1920. *Schwalbe* and *Sperber* (1,300 tons, 1887-8), reduced to hulks were sold in 1920. *Blitz* and *Pfeil* (1,390 tons, 1882), and later modernised were sold in 1921.

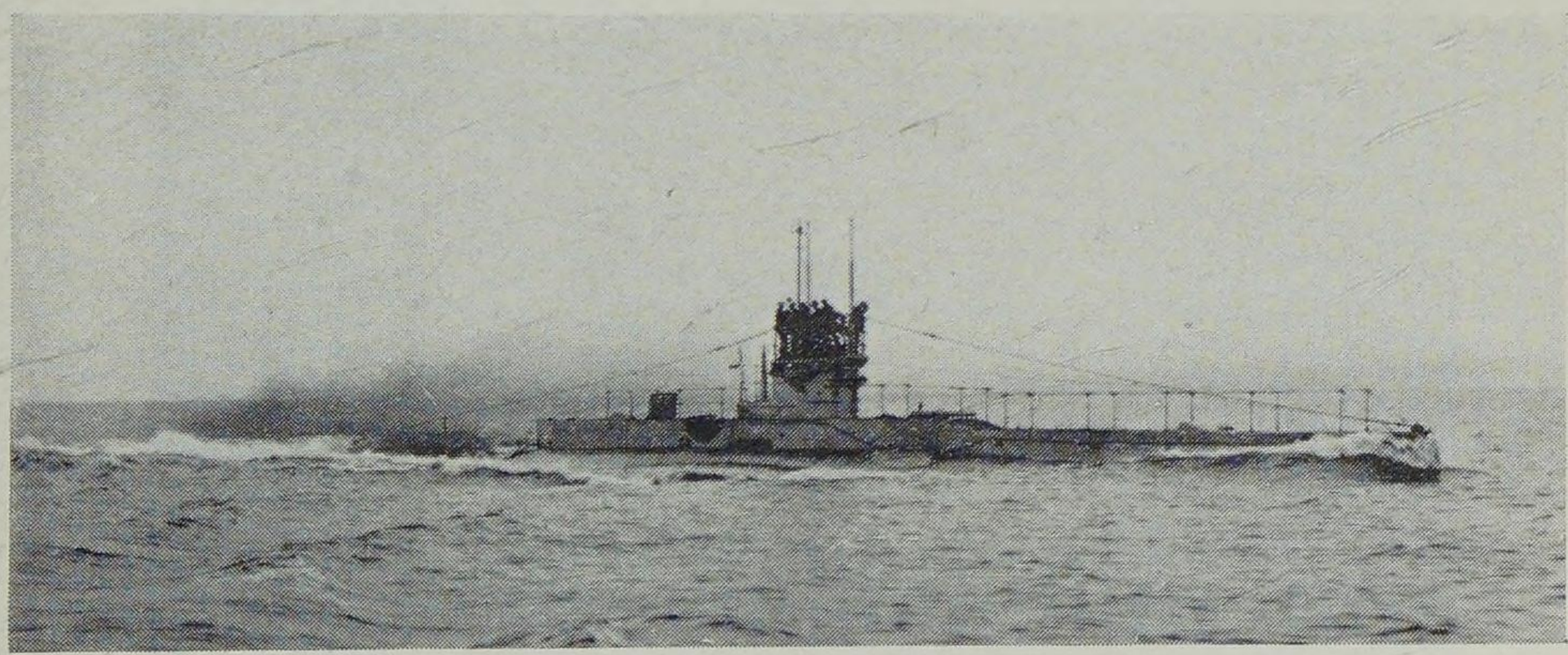


S.M.S. *Tiger*, gunboat. [*N.M.M. Greenwich*

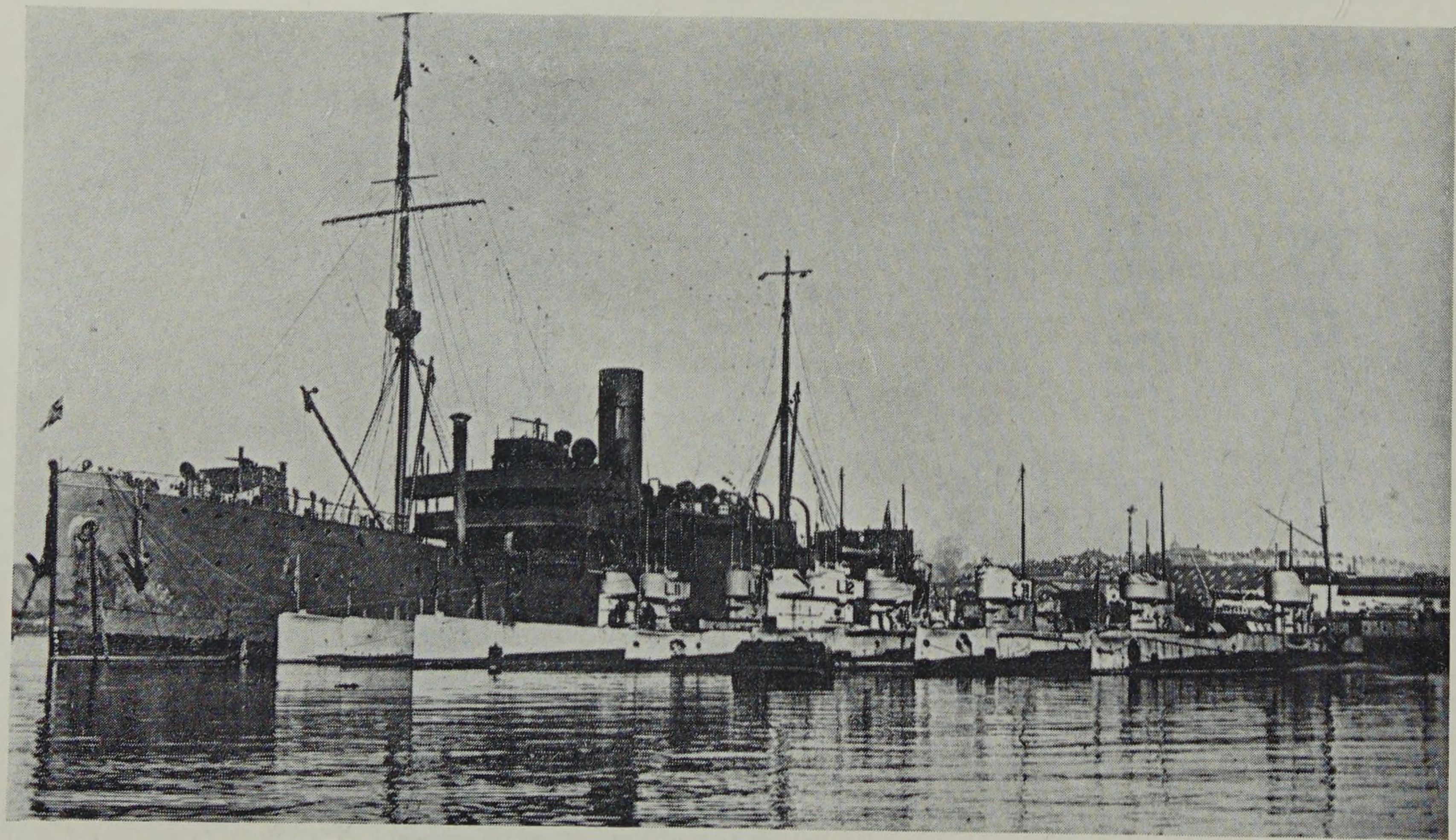
SECTION FIVE

SUBMARINES

(British and German)



H.M. Submarine E42. [*I.W.M.*



H.M.S. *Lucia* and Baltic Submarine Flotilla. [*I.W.M.*

British Submarine Development 1901-1923

IN 1900 the Admiralty took the plunge and decided to order our first submarines. The type selected was one which had been developed by an American, Mr. A. P. Holland, during the previous 25 years. Five " Hollands " were built by Messrs. Vickers at Barrow and completed in 1902-3. On the surface* they displaced about 100 tons and were driven by petrol engines of 160-260 h.p., giving them a speed of about 8 knots*. Submerged they, like all the vessels in this book, were propelled by electric motors with current supplied from batteries. Submerged speed of the " Hollands " was 5 knots. Of single-hull construction they had internal ballast tanks and one bow torpedo tube. Much practical experience was gained from these experimental prototypes in which such equipment as the periscope was evolved.

Next came 13 " A " class (180 tons, 450-550 h.p., 11.5 knots), completed in 1904-5. New features in these were the conning tower, two bow torpedo tubes, side by side, whilst a heavy oil engine was tried in the last ship of the class. The 11 " B " class (280 tons, 600 h.p., 13 knots), completed in 1905-6, had a reasonable deck and were followed by 38 very similar " C " class vessels, completed in 1906-10. Six of the latter came from Chatham Dockyard, the first to be built outside Barrow. Larger superstructures were provided on the later " C's " and older vessels were also modified in this way.

Meanwhile D1 (550 tons, 1,200 h.p., 16 knots), completed in 1910, marked an enormous advance in British submarine design. Her twin screws were driven by diesel engines instead of petrol, and external ballast tanks made her the first of the Admiralty saddle-tank type. The bow torpedo tubes were arranged one above the other, thus giving her a finer entry, and a stern tube was added. Seven improved " D's " followed, D4 being the first British submarine to mount a gun. The " E " class (700 tons, 1,600, H.P. 15 knots), which followed, played an enormous part in the war, 57 of them (including 2 for Australia) being completed in 1913-17. Improvements introduced were transverse bulkheads and additional beam torpedo tubes. Six of these vessels were our first submarine minelayers, which became operational in the first half of 1916.

For a year or two before the war submarines had large serial numbers painted on their conning towers, in addition to the classification B4, C31, etc., on the hull. Thus

A1-13	were	1-13
B1-11	,,	21-30 (the lost B2 being excluded presumably)
C1-38	,,	31-68
D1-8	,,	71-78
E1-19	,,	81-99 (the last serial number carried is uncertain).

At an earlier period, circa 1910, numbers lower by ten had been used, thus D1 first appeared as 61 before being altered to 71. This excluded the " A " class, which carried Roman figures 1-XIII, and the " Hollands ", No. 1-No. 5, which were then being discarded.

So far only the main stream of British submarine evolution, starting from the " Hollands ", has been covered. In 1913 the Admiralty decided to expand the submarine fleet by trying out other types and by including more shipyards in the programme (hitherto monopolised by Messes. Vickers and Chatham Dockyard). These types were:—

* Surface displacements and speeds are those quoted throughout these notes.

3 " S " class.	Scott-Laurenti type	(Sc.)
4 " W " class.	Armstrong-Laubeuf type	(AW.)
4 " V " class.	Vickers special double-hulled type	(V.)
Nautilus	Large ocean-going vessel (diesel-driven)	(V.)
Swordfish.	Large ocean-going vessel (steam-driven)	(Sc.)
3 " F " class.	Admiralty double-hulled type	(C.Dy., T., W.)

At this period a distinction was made between " Submarines " and " Submersibles ". The former were single-hulled vessels designed with the minimum under-water resistance, whilst submersibles were double-hulled, the inner pressure hull being enclosed in an outer shell designed for high surface speed. As the two forms tended to merge in later classes, the distinction disappeared.

The " S " class (265 tons, 650 h.p., 13 knots) were Italian Laurenti type " submersibles " and the first double-hulled vessels in the Navy, S1 being completed at the outbreak of war. The " W " class (340 tons, 710 h.p., 13 knots) were French Laubeuf type " submersibles ", the first of which was the French *Narval* of 1897. Experience wi h these classes was useful but, being considered more suitable for Mediterranean conditions, they were sold to Italy in 1916. The " V " class (364 tons, 900 h.p., 14 knots) incorporated Messrs. Vickers' ideas on this type of vessel, whilst the " F " class (353 tons, 900 h.p., 14.5 knots) embodied those of the Admiralty. All these ships were small but *Nautilus* and *Swordfish* were experimental prototypes for very much larger ocean-going vessels, one powered by diesels and the other by geared steam turbines. The largest diesel engine then available was the 8-cylinder 800 h.p. type used on the " E " class, whereas the h.p. required for the *Nautilus* was 3,600. By adding four cylinders to the 800 h.p. engine a 1,200 h.p. unit was quickly produced but two special engines were installed in the *Nautilus*. With three such engines the h.p. would have been 3,600—a plan, considered at the time, which later materialised in the successful " J " class, for which much useful experience had been gained in the *Nautilus*. This vessel never became operational as too many defects had come to light, but she had served her purpose. With geared steam turbines there was no difficulty in providing 3,750 h.p. on the *Swordfish*, but here snags of another kind were encountered. Serious explosions occurred due to steam condensing on the electrical switchgear and to failure to operate the battery ventilation system. Nevertheless valuable experience was gained for the design of the famous turbine-driven " K " class. *Swordfish's* steam plant was reported to have been replaced by diesels but it seems very doubtful of this was ever done. She was however converted to a surface patrol vessel.

To supplement the war programme twenty " H1 " class (364 tons, 480 h.p., 13 knots) were ordered, ten from Messrs. Vickers at Montreal and ten from the Fore River Yard in the U.S.A. (to be sent to Montreal for arming). Twelve had been delivered in 1915 when the U.S. Government clamped down on delivery of the last eight as being an un-neutral activity. Of " Holland " type, with 4—18 in. bow tubes, they proved very handy little ships. Later in the war an improved version, the " H21 " class, was ordered from British yards. These were heavier and had 21 in. bow tubes.

Early in the war some U-boats were found to have a much greater range of action than had hitherto been believed. As a result our first ocean-going ships were built. These were the 14 double-hulled " G " class (700 tons, 1,600 h.p., 14.5 knots), nearly all delivered in 1916. Further reports, later proved false, credited the Germans with building large submarines with a speed of 22 knots. This led to our building seven much larger and faster " J " class (1,200 tons, 3,600 h.p., 19.5 knots). As mentioned earlier, these were driven by three 1,200

·d·ч diesel engines on three shafts, and were the fastest submarines in existence when delivered in 1916. The next two classes, " K " and " M ", were the most remarkable submarines produced during the war. The " K " class (1,880 tons, 10,500 h.p., 24 knots) were " Fleet Submarines ", designed to accompany the Battle Fleet if required. Experience with steam turbines had been gained in the *Swordfish*, but those on the " K's " were 2½ times more powerful, producing 24 knots, a speed unapproached by such vessels for many years. As built, the " K's " were flush-decked, which made them tend to dive in a seaway or dive too steeply in calm weather. They were therefore modified with bulbous clipper bows, the guns were placed on the superstructure and the torpedo tubes in the superstructure, removed. Only one of the six " Improved K" class of 2,140 tons was completed after the war.

On both British and German submarines the gun armament was subject to continual change according to operational requirements and availability of newer weapons. This must be borne in mind when reading the class details. E20, for example, carried an Army 6 in. howitzer for a time, for bombardment purposes. This may have had something to do with Lord Fisher's idea of the " Submarine-Monitor ", which materialised in the " M " class (1,600 tons, 2,400 h.p., 15.5 knots). These ships mounted a 12 in. Mark XI gun (as on the King Edward VII class pre-Dreadnoughts), firing 850 lb. shell. The gun was loaded on the surface and could be fired both on and below the surface. In the latter case the gun was considerably elevated and the ship submerged to 12-20 ft. With a foresight on the gun and slight lateral traverse, aim could be taken by periscope. Firing under these conditions must have been an impressive sight but no photograph of this appears to exist.

Meanwhile submarines of the traditional British or " Admiralty Saddle-Tank " type continued to be built. The very successful " E " class were further developed in the larger " L " class (890-960 tons, 2,400 h.p., 17.5 knots). L1 and L2 were in fact laid down as E57 and E58. The class was divided into three types and included mine-layers. Many of the " L " class were not completed until after the war and others were cancelled.

Finally we come to the " R " class, yet another new type, the " Submarine Destroyer of Submarines ". These small, 420-ton vessels were then unique in having a much higher submerged speed than on the surface (15 knots as against 9.5) and in having the propeller abaft the rudder. Specially built to hunt U-boats, they mounted 6—18 in. bow torpedo tubes, two above water in surface trim. Like much later vessels with high submerged speed, they were difficult to steer on the surface. Unfortunately they came into service too late to fulfil the great hopes placed in them.

BRITISH SUBMARINE CLASSES

HOLLAND CLASS

Length: 63⅓ ft. *Beam:* 11¾ ft. *Displacement:* 104/122 tons.
Petrol engine. 1 screw. 160/74 h.p. 8/5 knots.
Torpedo tube: 1—14 in. (bow). *Complement:* 7.

(1)

Number	Completed	Builder	
No. 1	1902	V.	1913 Sold.

(2) As above but 150 tons (sub.) and 250 h.p. (surface).

No. 2	1902	V.	1913 Sold.
No. 3	1903	V.	1911 Sunk in experiments.
No. 4	1902	V.	1912 Dismantled.
No. 5	1903	V.	1912 Sank on tow to breakers.

A CLASS

Length: 100 ft. *Beam:* 11½ ft. *Displacement:* 165/180 tons.
Petrol engine (12 cyl.). 1 screw. 450/80 h.p. 11.5/7 knots.
Torpedo tubes: 2—18 in. *Complement:* 11-14.

(1)

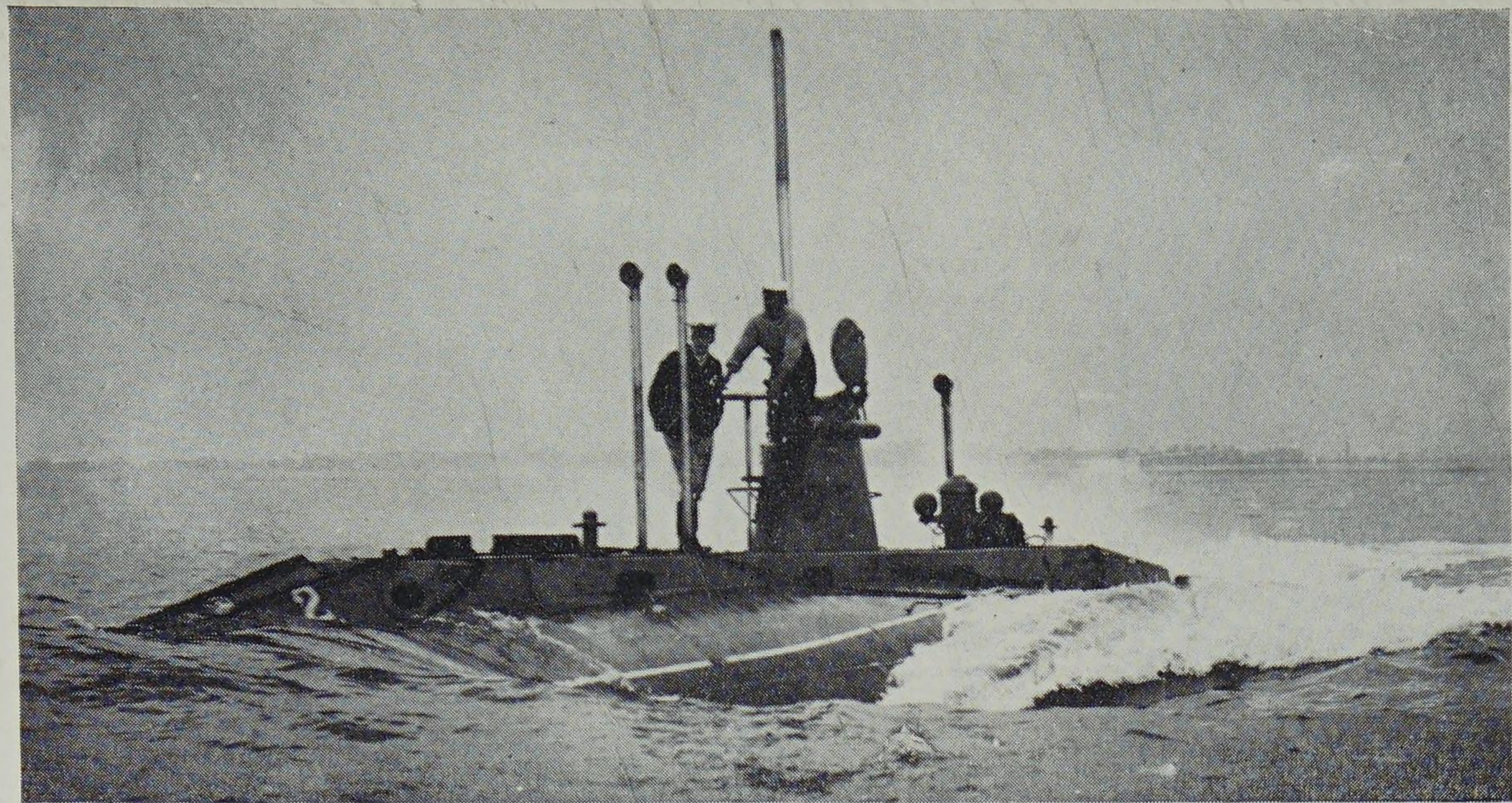
Number	Completed	Builder	
A1	1903	V.	1904 Sunk, collision off Portsmouth.
A2	1904	V.	1920 Dismantled, 1925 sold.
A3	1904	V.	1912 Sunk, collision off I. of Wight.
A4	1904	V.	1905 Sunk, collision off Portsmouth.

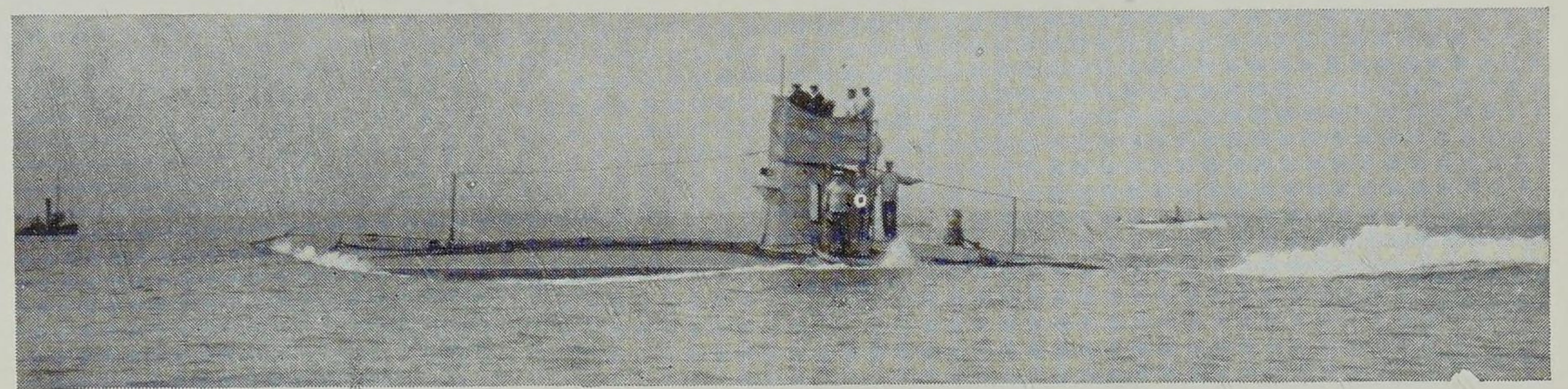
(2) As above but *Length:* 99 ft., *Beam:* 12¾ ft., *Displacement:* 180/207 tons, 16-cyl. engine and 550/150 h.p.

A5	1904	V.	1920 Dismantled.
A6	1904	V.	1920 Sold.
A7	1905	V.	1914 Foundered off Plymouth.
A8	1905	V.	1920 Sold.
A9	1905	V.	1919-20 Discarded.
A10	1905	V.	1919 Sold.
A11	1905	V.	1920 Scrapped.
A12	1905	V.	1920 Sold.
A13	1905	V.	1919-20 Discarded.

A1 was laid down as Holland No. 6. A13 had a heavy oil engine.

Left: H.M. Submarine No. 2 (Holland Class).





Right: H.M. Submarine A10.

B CLASS

Length: 135 ft. *Beam:* 13½ ft. *Displacement:* 280/313 tons.
Petrol engine. 1 screw. 600/190 h.p. 12-13/7-9 knots.
Torpedo tubes: 2—18 in. (bow). *Complement:* 16.

Number	Completed	Builder	
B1	1905	V.	1922 Sold.
B2	1905	V.	1912 Sunk, collision off Dover.
B3	1906	V.	1919 Sold.
B4	1906	V.	1919 Sold.
B5	1906	V.	1922 Sold.
B6	1906	V.	1919 Sold, scrapped in Italy.
B7	1906	V.	1919 Sold, scrapped at Malta.
B8	1906	V.	1919 Sold.
B9	1906	V.	1919 Sold, scrapped in Italy.
B10	1906	V.	1916 Bombed in dock at Venice.
B11	1906	V.	1919 Sold, scrapped in Italy.

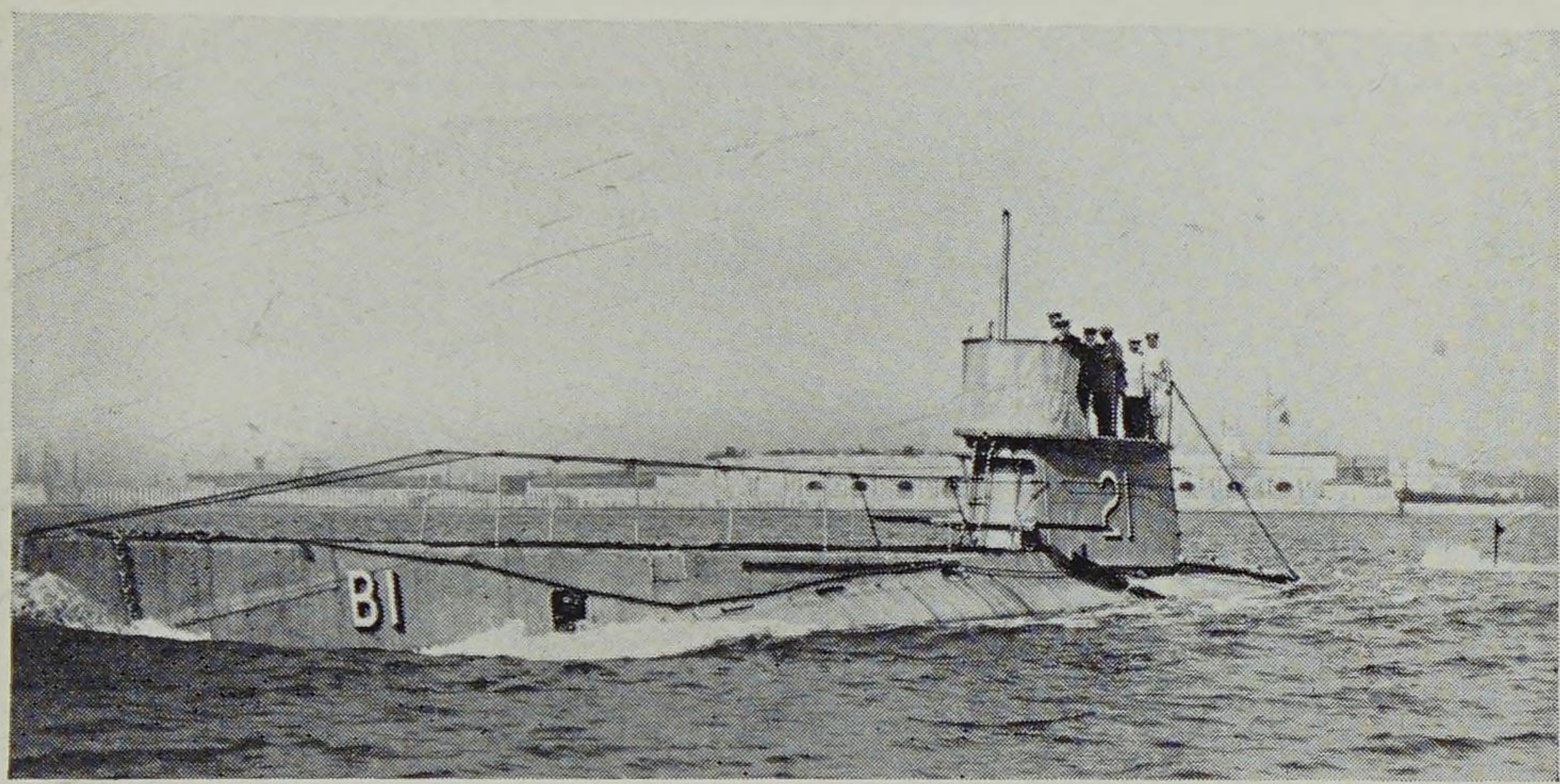
B1 was laid down as A14.

C CLASS

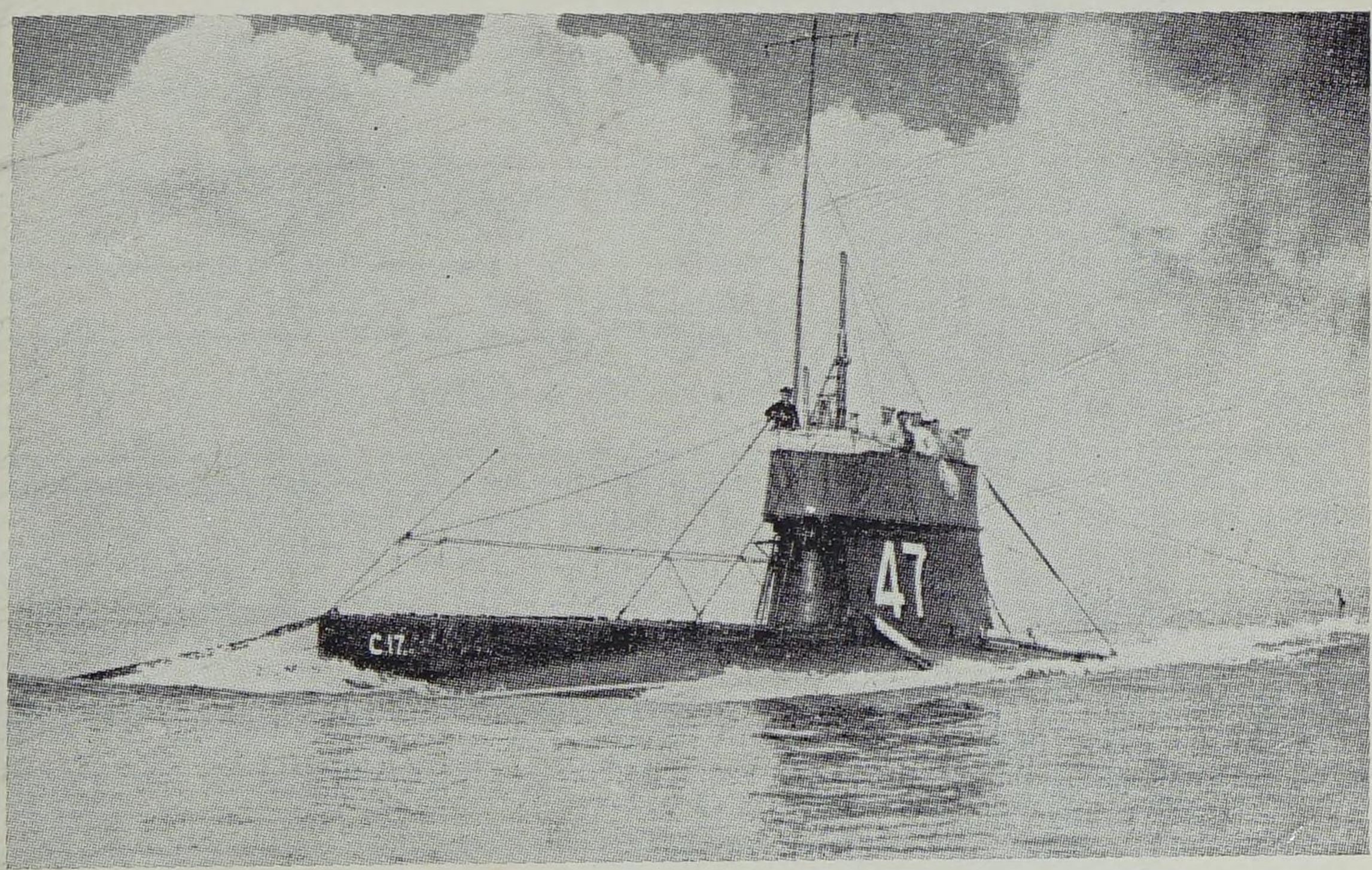
Length: 143 ft. *Beam:* 13½ ft. *Displacement:* 290/320 tons.
Petrol engine. 1 screw. 600/200 h.p. 13-14/8-10 knots.
Torpedo tubes: 2—18 in. (bow). *Complement:* 16.

(1)

Number	Completed	Builder	
C1	1906	V.	1921 Sold.
C2	1906	V.	1924 Sold.
C3	1907	V.	1918 Blown up at Zeebrugge Mole.
C4	1907	V.	1922 Sold.
C5	1906	V.	1919 Scrapped at Malta.
C6	1907	V.	1919 Sold.
C7	1907	V.	1919 Sold.
C8	1907	V.	1921 Sold.
C9	1907	V.	1922 Sold.
C10	1907	V.	1922 Sold.
C11	1907	V.	1909 Sunk, collision offCromer.
C12	1908	V.	1920 Scrapped.
C13	1908	V.	1920 Sold.
C14	1908	V.	1921 Sold.
C15	1908	V.	1922 Sold.
C16	1908	V.	1922 Sold.
C17	1908	C.Dy.	1919 Sold.
C18	1908	C.Dy.	1921 Sold.



H.M. Submarine B1. [*Cribb*



H.M. Submarine C17.

(2) As above but 321 tons (sub), 14/10 knots. C21 onwards had larger conning towers.

Number	Completed	Builder	
C19	1909	C.Dy.	1920 Sold.
C20	1910	C.Dy.	1921 Sold.
C21	1909	V.	1921 Sold.
C22	1909	V.	1920 Sold.
C23	1909	V.	1921 Sold.
C24	1909	V.	1921 Sold.
C25	1909	V.	1921 Sold.
C26	1909	V.	1918 Blown up at Helsingfors.
C27	1909	V.	1918 Blown up at Helsingfors.
C28	1909	V.	1921 Sold.
C29	1909	V.	1915 Mined in the North Sea.
C30	1909	V.	1921 Sold.
C31	1909	V.	1915 Lost off Belgian Coast.
C32	1909	V.	1917 Stranded and blown up, Gulf of Riga.
C33	1910	C.Dy.	1915 Lost in the North Sea.
C34	1910	C.Dy.	1917 Sunk by U52 off Shetland Is.
C35	1910	V.	1918 Blown up at Helsingfors.
C36	1910	V.	1919 Scrapped in China.
C37	1910	V.	1919 Scrapped in China.
C38	1910	V.	1919 Scrapped in China.

CC1 and 2 (R.C.N.)

Length: 144¼ ft. *Beam:* 15 ft. *Displacement:* 313/373 tons.
Petrol engine. 1 screw. 600/260 h.p. 13/10.25 knots.
Torpedo tubes: 5—18 in.
(1)

Number	Completed	Builder	
CC1	1914	Seattle	c. 1925 Discarded.

(2) As above but *length:* 157½ ft., *beam:* 14 ft. and 3—18 in. T. tubes.

CC2	1914	Seattle	c. 1925 Discarded.

These two vessels were building for Chile as the *Iquique* and *Antofagasta* respectively and were acquired by the Royal Canadian Navy.

D CLASS

Length: 162 ft. *Beam:* 20½ ft. *Displacement:* 550/595 tons.
Diesel engines. 2 screws. 1,200/550 h.p. 16/9 knots.
Torpedo tubes: 3—18 in. (2 bow, 1 stern). *Gun:* 1—small. *Complement:* 25
(1)

Number	Completed	Builder	
D1	1910	V.	1919 Sold.

H.M. Submarine D7. [*Cribb*

(2) As above but displacement (sub.) 604-620, 1,750/550 h.p., 16/10 knots., 2—12 pdr. guns, larger conning tower and different deck profile.

Number	Completed	Builder	
D2	1910	V.	1914 Lost in the North Sea.
D3	1911	V.	1918 Bombed (in error), by French airship.
D4	1911	V.	1921 Sold.
D5	1912	V.	1914 Mined off East Coast.
D6	1912	V.	1918 Sunk by U-boat off N. Ireland.
D7	1911	C.Dy.	1921 Sold.
D8	1912	C.Dy.	1921 Sold.

D4 was the first British submarine to mount a gun.

E CLASS

Length: 181 ft. *Beam:* 22½ ft. *Displacement:* 660/800 tons.
Diesel engines: 2 screws. 1,600/840 h.p. 15-16/10 knots.
Torpedo tubes: 5—18 in. (2 bow, 2 beam, 1 stern). *Gun:* 1—12 pdr.
Complement: 30.

Note.—There were minor variations in the class which was officially subdivided into the E1, E7 and E21 types.

(1) E1 type.

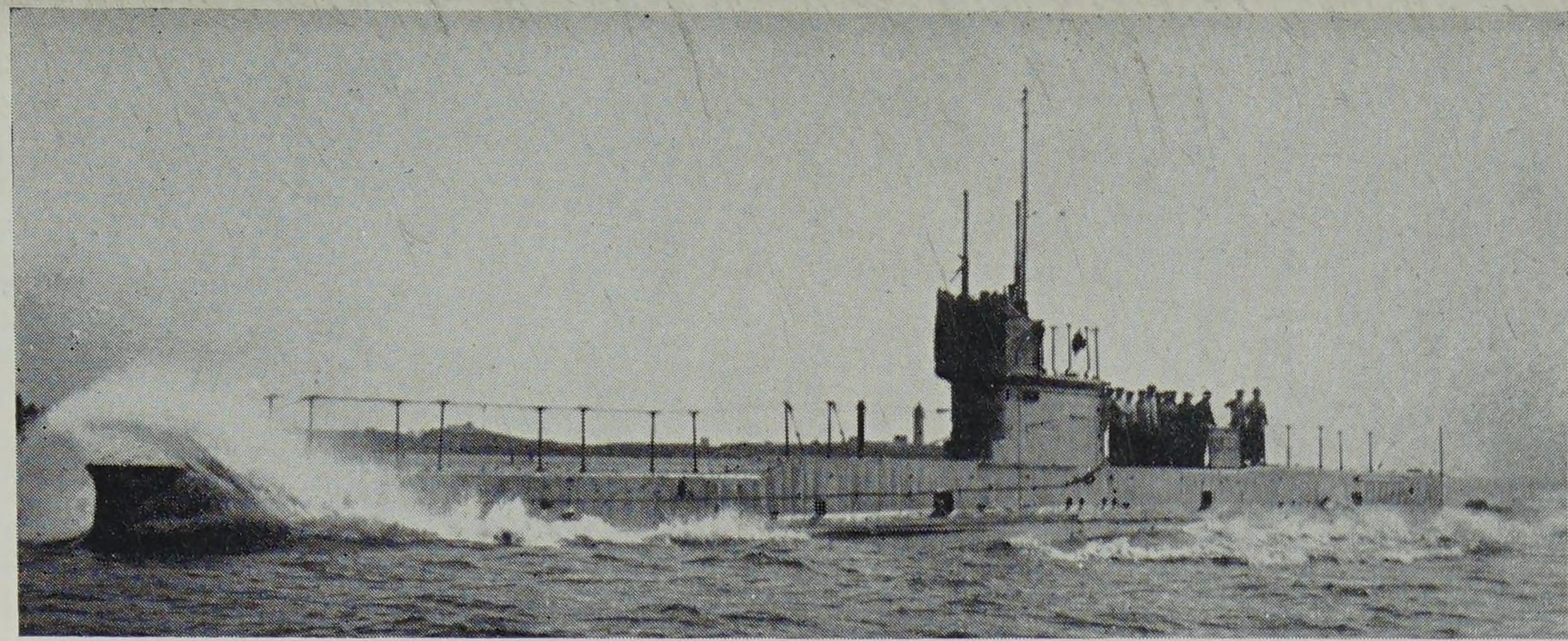
Number	Completed	Builder	
E1	1913	C.Dy.	1918 Blown up at Helsingfors.
E2	1913	C.Dy.	1921 Sold at Malta.
E3	1915	V.	1914 Torpedoed by U27 off Borkum.
E4	1913	V.	1922 Sold.
E5	1913	V.	1916 Sunk by cruiser *Strassburg* in North Sea.
E6	1913	V.	1915 Mined in North Sea.

R. Australian N. ships.

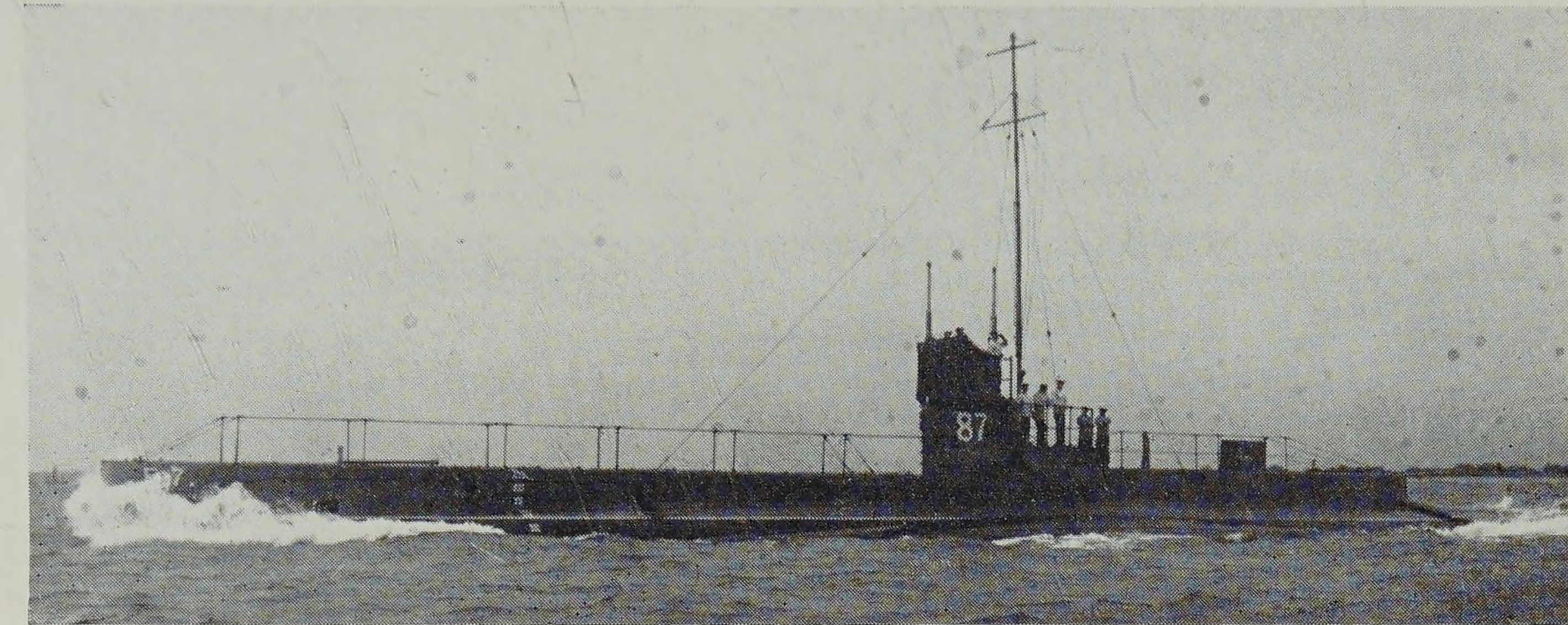
AE1	1914	V.	1914 Lost in Pacific (struck uncharted reef?).
AE2	1914	V.	1915 Sunk by Turkish warships in Sea of Marmora.

(2) E7 type.

E7	1913	C.Dy.	1915 Sunk at the Dardanelles.
E8	1913	C.Dy.	1918 Blown up at Helsingfors.
E9	1913	V.	1918 Blown up at Helsingfors.
E10	1914	V.	1915 Lost in the North Sea.
E11	1914	V.	1921 Sold at Malta.
E12	1914	C.Dy.	1921 Sold at Malta.



Left: H.M. Submarine AE1.



Right: H.M. Submarine E7.
[*Cribb*

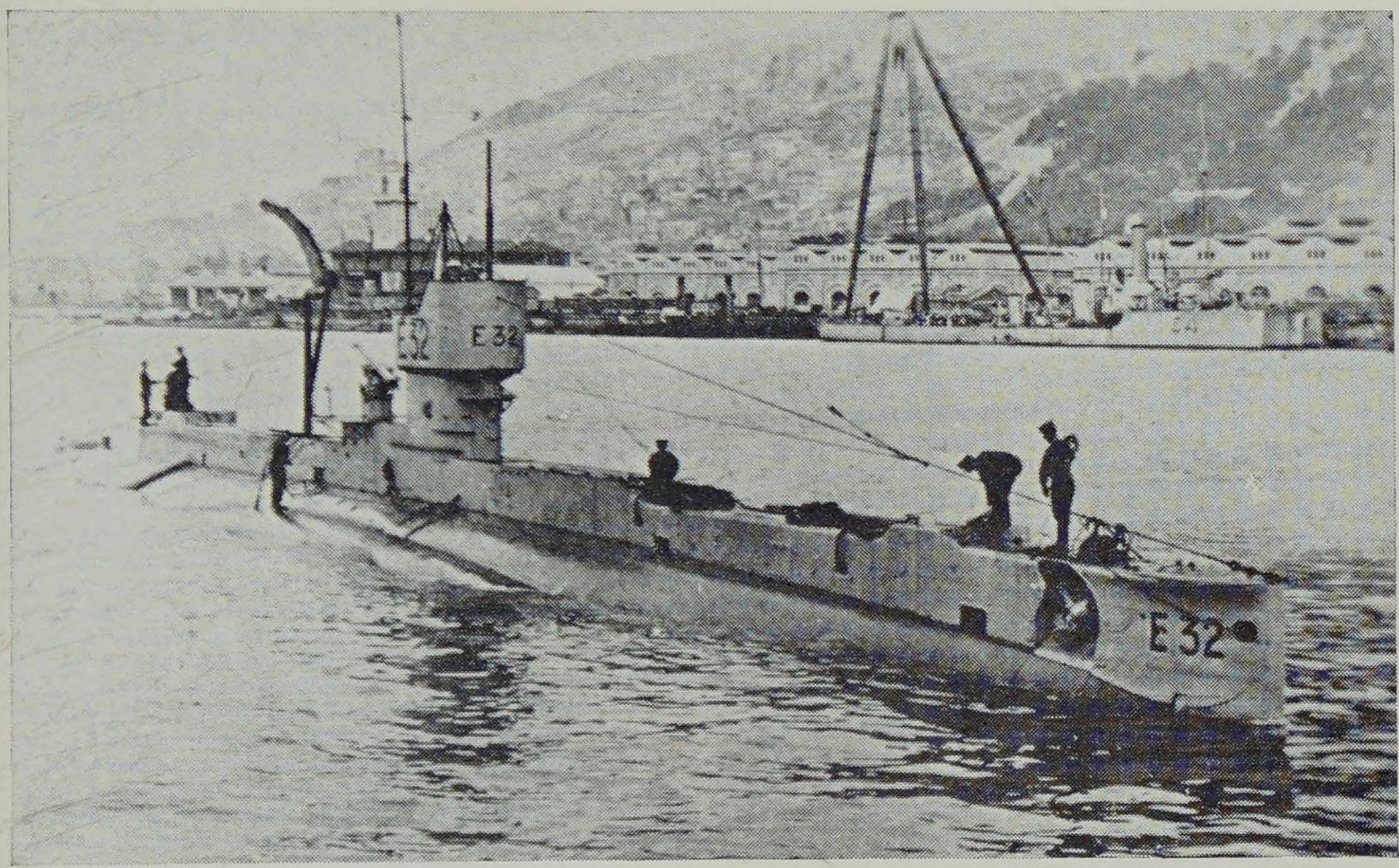
E CLASS (E7 type) *Continued*

Number	*Completed*	*Builder*	
E13	1914	C.Dy.	1915 Stranded on Danish coast, 1919 scrapped.
E14	1914	V.	1918 Sunk at the Dardanelles.
E15	1914	V.	1915 Stranded at the Dardanelles and destroyed.
E16	1915	V.	1916 Mined in Heligoland Bight.
E17	1915	V.	1916 Wrecked off Texel.
E18	1915	V.	1916 Mined in the Baltic.
E19	1915	V.	1918 Blown up at Helsingfors.
E20	1915	V.	1915 Torpedoed by UB14 in Sea of Marmora.

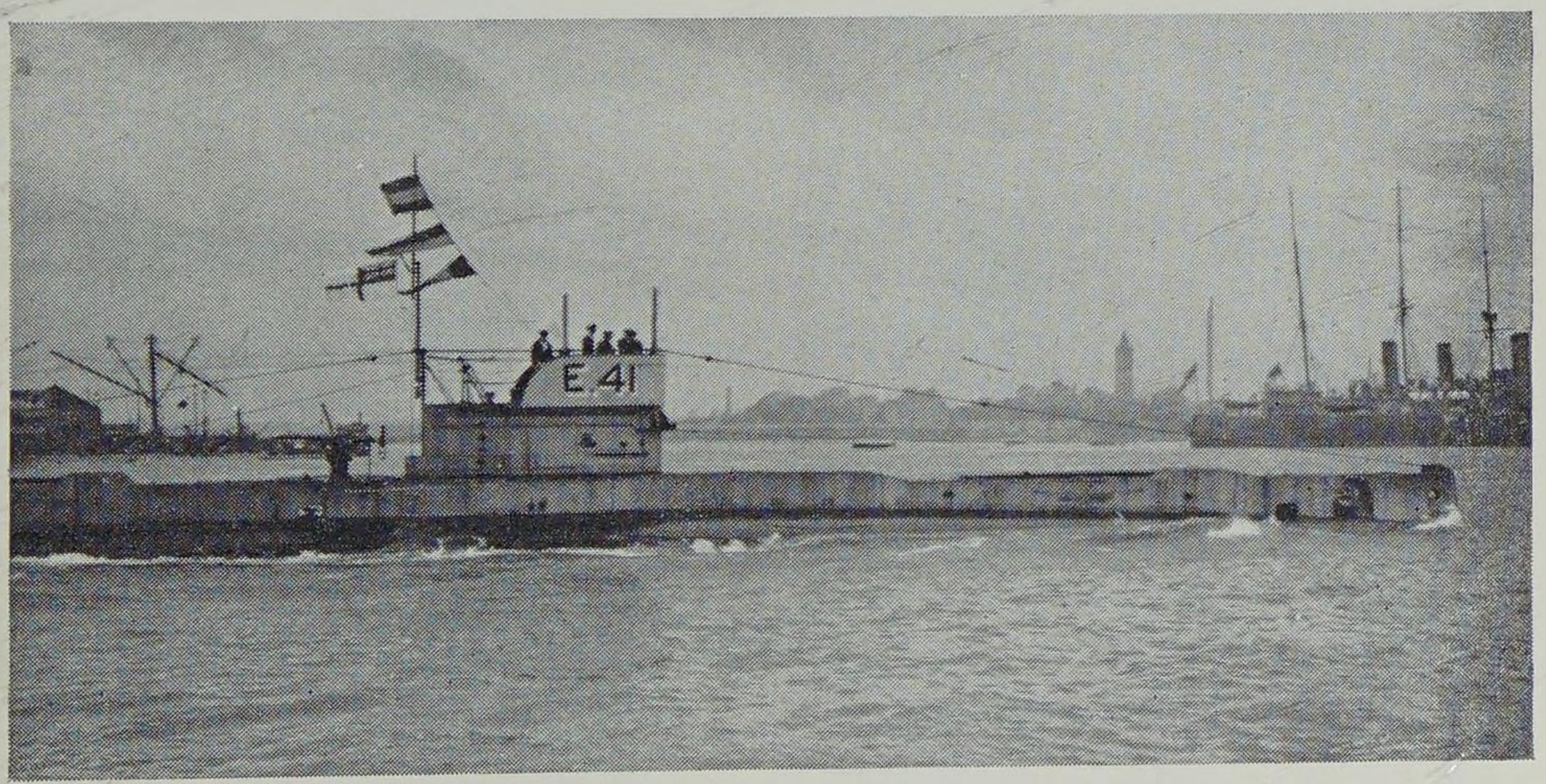
(3) E21 type. Minelayers had no beam tubes but had mine tubes and carried 20 mines.

E21	1915	V.	1921 Sold.
E22	1915	V.	1916 Torpedoed by UB18 in North Sea.
E23	1915	V.	1922 Sold.
E24 (ML)	1916	V.	1916 Mined in Heligoland Bight.
E25	1915	WB.	1921 Sold.
E26	1915	WB.	1915 Lost in North Sea.
E27	1917	Y.	1922 Sold.
E29	1915	AW.	1922 Sold.
E30	1915	AW.	1916 Lost in North Sea.
E31	1915	Sc.	1922 Sold.
E32	1916	W.	1922 Sold.
E33	1916	T.	1922 Sold.
E34 (ML)	1917	T.	1918 Mined in Heligoland Bight.
E35	1916	C.	1922 Sold.
E36	1916	C.	1917 Lost, collision in North Sea.
E37	1916	F.	1916 Lost in North Sea.
E38	1916	F.	1922 Sold.
E39	1916	Pal./AW.	1921 Sold.
E40	1917	Pal./AW.	1921 Sold.
E41 (ML)	1916	CL.	1922 Sold.
E42	1916	CL.	1922 Sold.
E43	1916	SH.	1921 Sold.
E44	1916	SH.	1921 Sold.
E45 (ML)	1916	CL.	1922 Sold.
E46 (ML)	1916	CL.	1922 Sold.
E47	1916	F./WB.	1917 Lost in North Sea.
E48	1917	F./WB.	1921 Target, 1928 sold.
E49	1916	SH.	1917 Mined off Shetland Is.
E50	1917	C.	1918 Lost in North Sea.
E51 (ML)	1917	Sc.	1921 Sold.
E52	1917	Dny.	1921 Sold.
E53	1916	WB.	1922 Sold.
E54	1916	WB.	1921 Sold.
E55	1916	Dny.	1922 Sold.
E56	1916	Dny.	1923 Sold.

Sister ship: E28 cancelled during the war. E1 and 2 were laid down as D9 and 10



H.M. Submarine E32. [N.P.C.



H.M. Submarine E41. [Cozens

Having listed the standard British classes developed from the Hollands it is necessary to go back to 1913. In that year the Admiralty decided to try out other types and to include additional builders in the submarine programme. Vessels concerned were the S class, W class, V class, *Nautilus*, *Swordfish* and the F class.

S CLASS (Scott-Laurenti type)

Length: 148 ft. *Beam:* 14 ft. *Displacement:* 265/386 tons.
Diesel engines. 2 screws. 650/400 h.p. 13.25/8.5 knots.
Torpedo tubes: 2—18 in. (bow). *Complement:* 18-21.

Number	Completed	Builder	
S1	1914	Sc.	July 1916 Sold to Italy.
S2	1915	Sc.	
S3	1915	Sc.	

W CLASS (Armstrong-Laubeuf type)

Length: 171½ ft. *Beam:* 15⅓ ft. *Displacement:* 340/508 tons.
Diesel engines. 2 screws. 710/480 h.p. 13/8.5 knots.
Torpedo tubes: 2—18 in. (bow). *Gun:* 1 small. *Complement:* 19.

(1)

Number	Completed	Builder	
W1	1915	AW.	July 1916 sold to Italy.

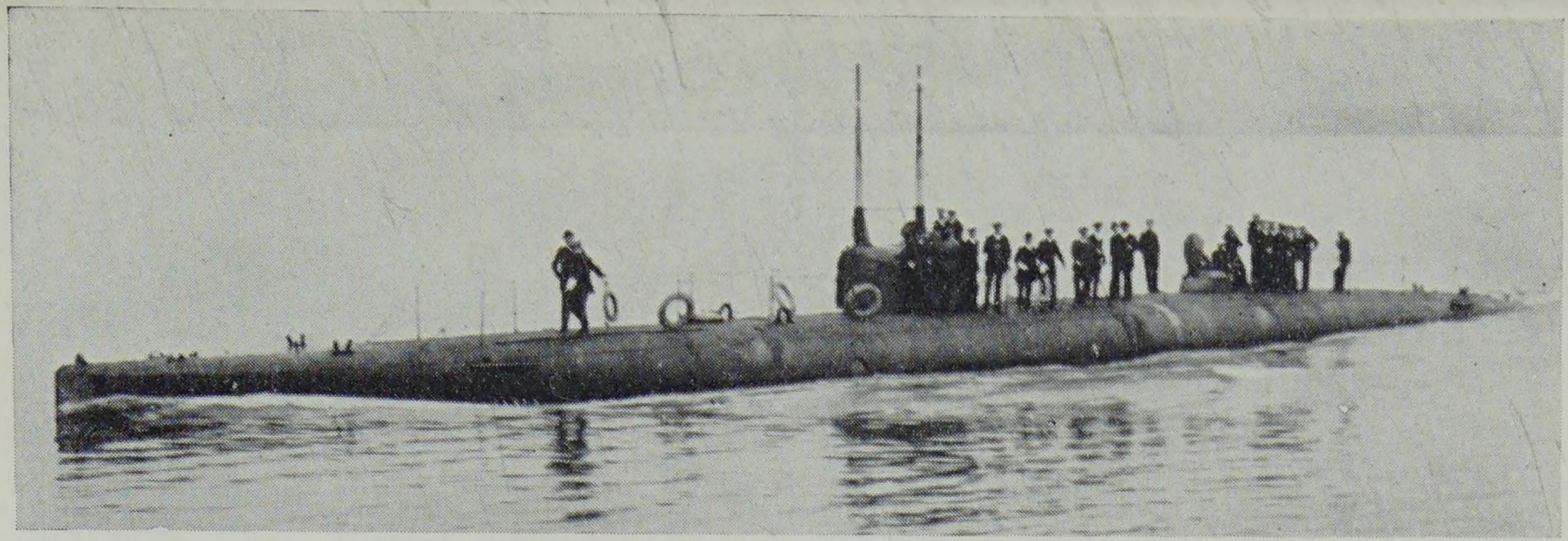
(2) As above but length: 149¾ ft., beam: 17 ft. and 760 surface h.p.

W2	1915	AW.	July 1916 Sold to Italy.
W3	1916	AW.	
W4	1916	AW.	

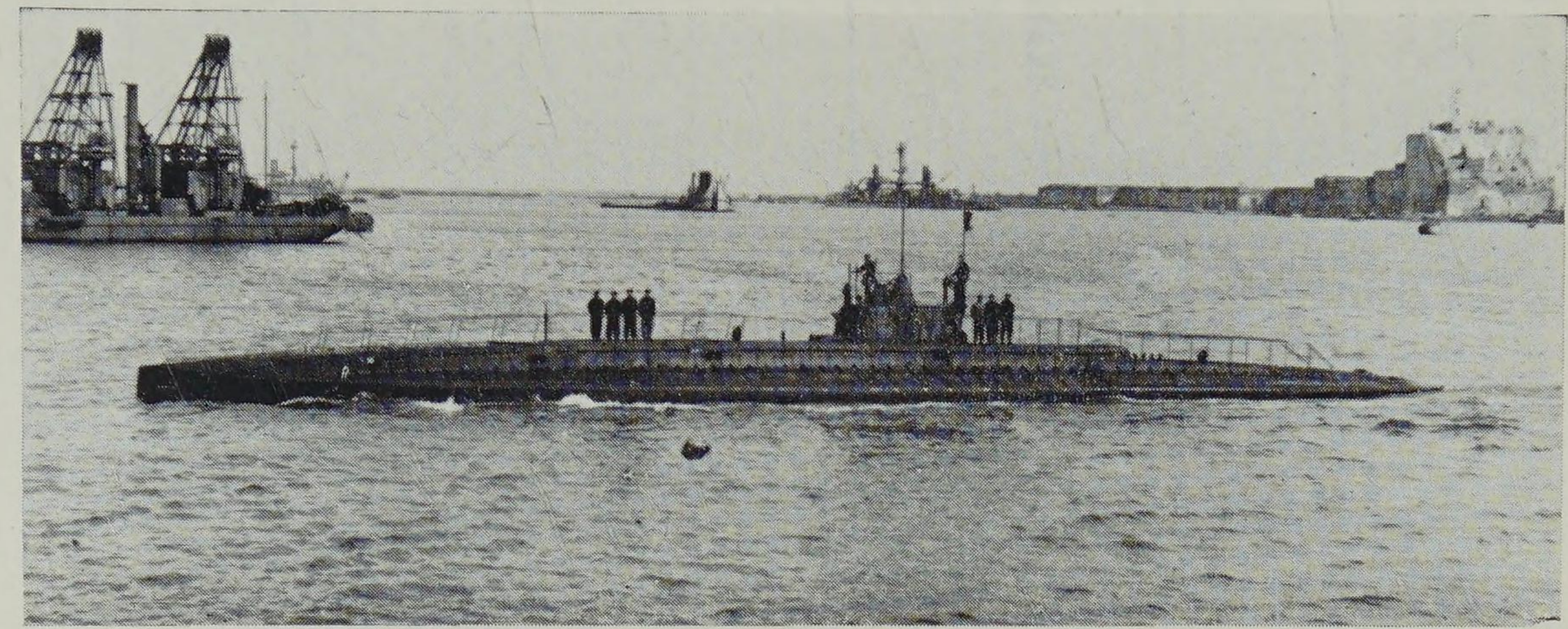
V CLASS (Vickers special type)

Length: 147½ ft. *Beam:* 16¼ ft. *Displacement:* 364/486 tons.
Diesel engines. 2 screws. 900/380 h.p. 14/9 knots.
Torpedo tubes: 2—18 in. (bow). *Gun:* 1 small. *Complement:* 18.

Number	Completed	
V1	1915	1921 Sold.
V2	1915	1921 Sold.
V3	1916	1920 Sold.
V4	1916	1920 Sold.



Left: H.M. Submarine S1.
[*I.W.M.*



Right:
Submarine W3 in 1917 (after transfer to Italy).
[*I.W.M.*

H.M.S. NAUTILUS (laterN1)

Length: 242½ ft. *Beam:* 26 ft. *Displacement:* 1,270/1,694 tons.
Diesel engines. 2 screws. 3,700/1,000 h.p. 17/10 knots.
Torpedo tubes: 2—21 in. (1 bow, 1 stern). 4—18 in. (beam). *Gun:* 1—12 pdr.
Complement: 42.

Number	Completed	Builder	
Nautilus (N1)	1917	V.	1918 Battery charging vessel, 1922 Sold.

Experimental diesel-driven ocean-going vessel which did not become operational.

H.M.S. SWORDFISH (later S1)

Length: 231¼ ft. *Beam:* 23 ft. *Displacement:* 932/1,475 tons.
Geared turbines. 2 screws. 3,750/1,500 h.p. 18/10 knots.
Torpedo tubes: 2—21 in. (bow), 4—18 in. (beam). *Guns:* 2—12 pdr.
Complement: 42.

Number	Completed	Builder	
Swordfish (S1)	1916	Sc.	1918 Surface patrol vessel, 1922 sold.

Experimental steam-driven ocean-going vessel which was converted to a surface patrol boat. As such she resembled a P-boat (see Part 4) but, so the writer was told, was withdrawn from operations since her unfamiliar appearance drew fire from British ships. It has been stated that she never became S1 but the writer saw her just after the War, and is fairly sure that she had S1 painted in white on the superstructure. Since the earlier S1 was sold in July 1916 there seems no reason why she should not have become S1.

F CLASS

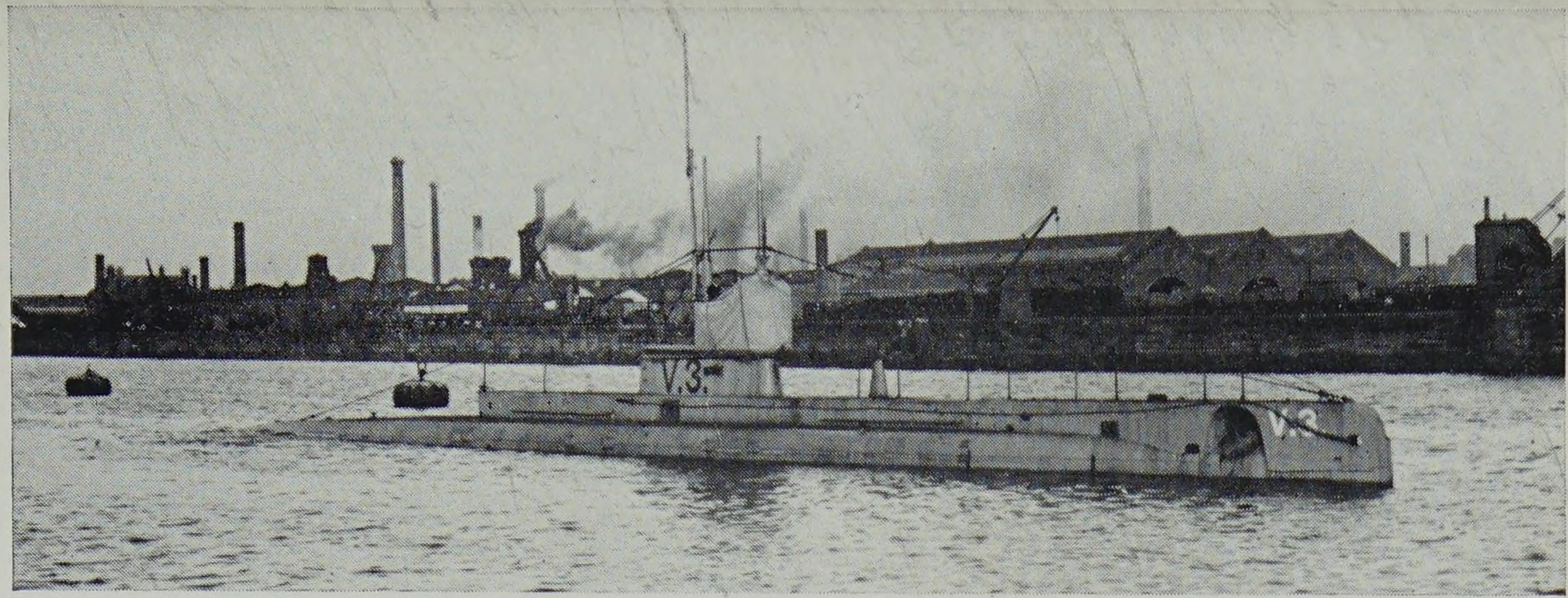
Length: 151½ ft. *Beam:* 16 ft. *Displacement:* 353/525 tons.
Diesel engines. 2 screws. 900/400 h.p. 14.5/9 knots.
Torpedo tubes: 3—18 in. (2 bow, 1 stern) .*Gun:* 1—small. *Complement:* 18-20.

Number	Completed	Builder	
F1	1915	C.Dy.	1920 Sold.
F2	1917	W.	1922 Sold.
F3	1916	T.	1920 Sold.

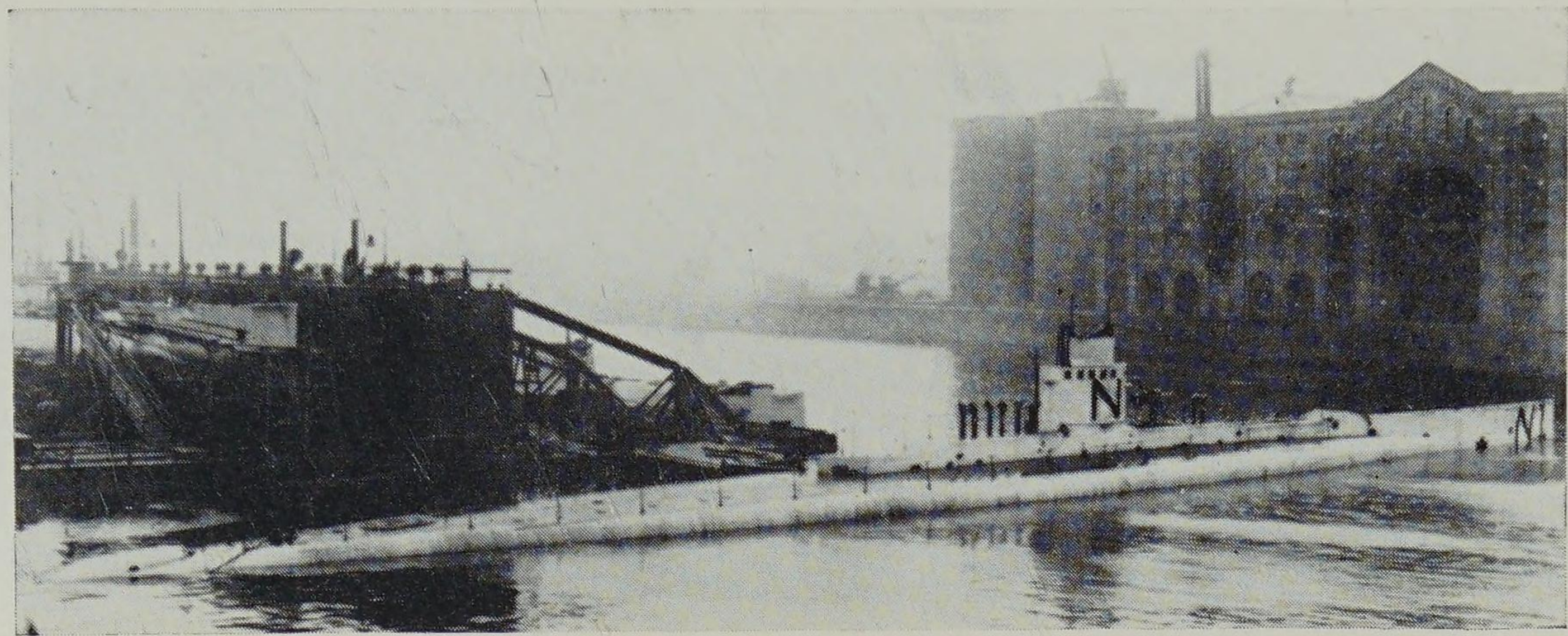
Sister ships: F4-8 cancelled.

G CLASS

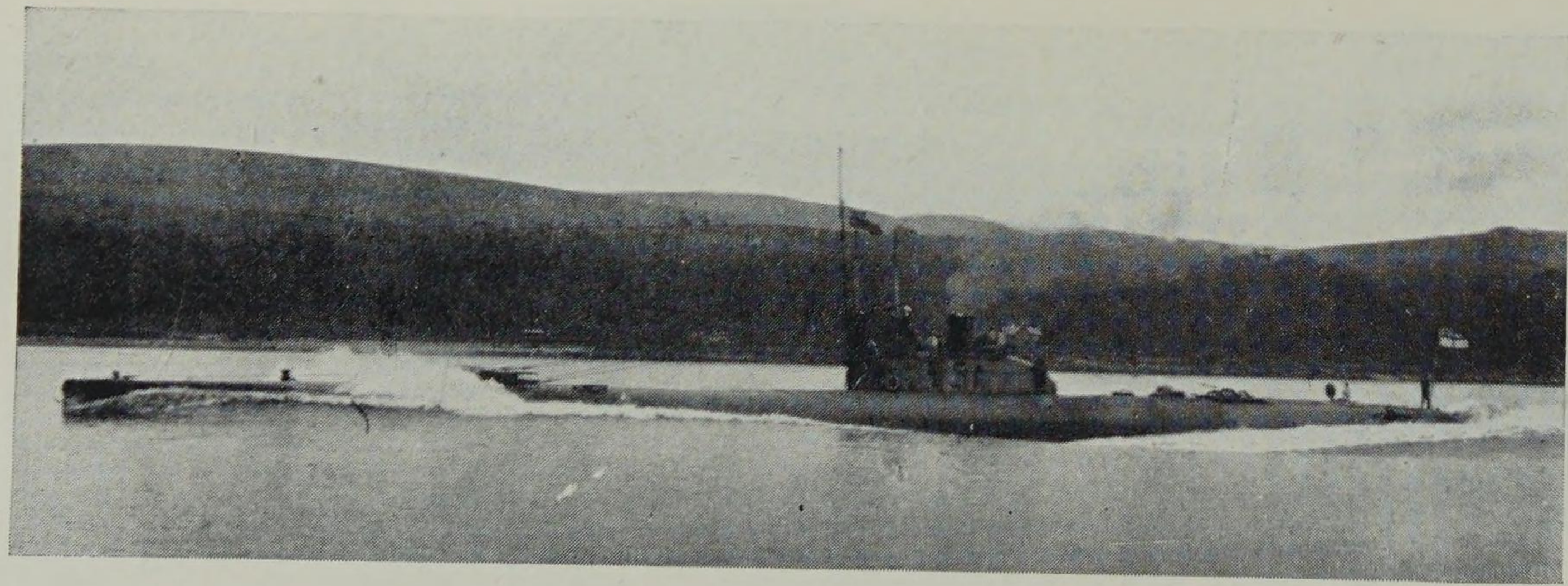
Length: 187 ft. *Beam:* 22⅔ ft. *Displacement:* 700/975 tons.
Diesel engines. 2 screws. 1,600/840 h.p. 14.5/10 knots.
Torpedo tubes: 1—21 in. (stern). 4—18 in. (2 bow, 2 beam). *Gun:* 1—3 in. A.A.
Complement: 31.



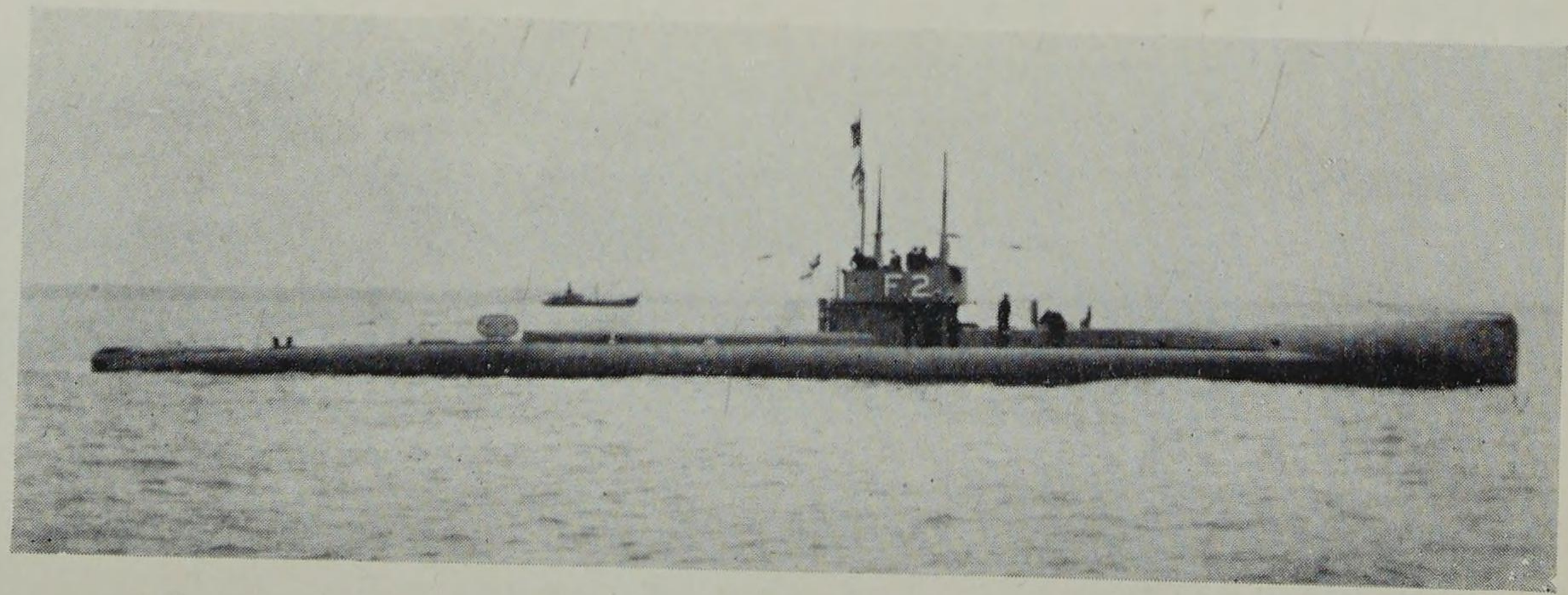
Left: H.M. Submarine V3.
[*I.W.M.*



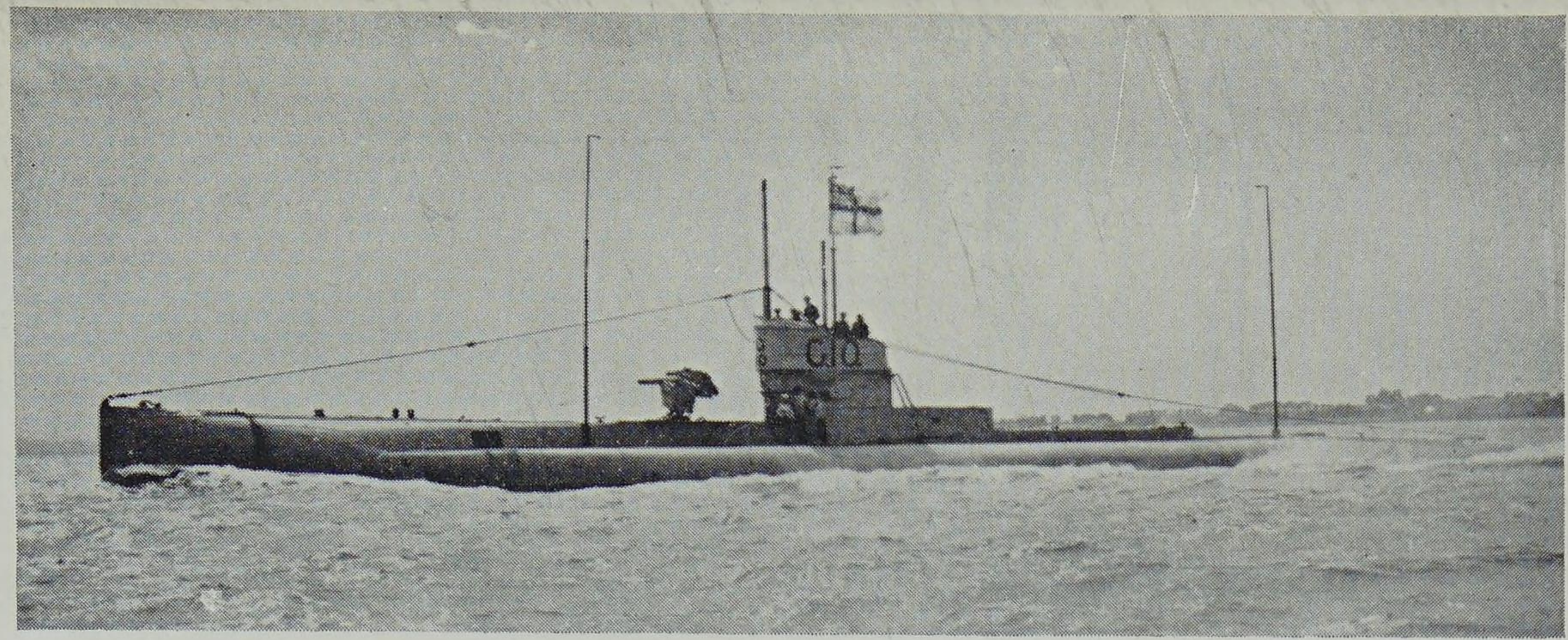
Right: H.M. Submarine N1 as *Nautilus*).
[*I.W.M.*



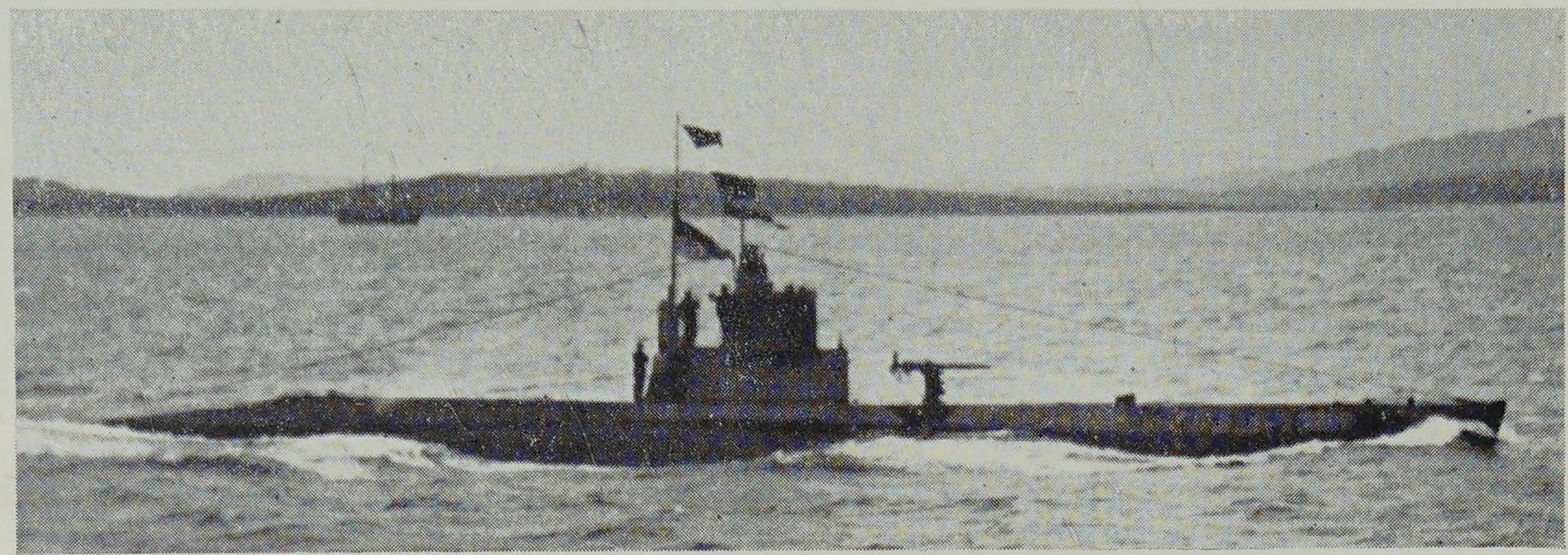
Left: H.M. Submarine *Swordfish* in trials in 1916. The 'S1' on this photograph has been added later.
[*I.W.M.*



Right: H.M. Submarine F2.
[*I.W.M.*



Left: H.M. Submarine G10.
[*Cozens*



Right: H.M. Submarine H4 in 1915.
[*I.W.M.*

Number	Completed	Builder	
G1	1915	C.Dy.	1920 Sold, 1923 scrapped.
G2	1916	C.Dy.	1920 Sold, 1923 scrapped.
G3	1916	C.Dy.	1921 Sold.
G4	1916	C.Dy.	1928 Sold.
G5	1916	C.Dy.	1922 Sold.
G6	1916	AW.	1921 Sold.
G7	1916	AW.	1918 Lost in North Sea.
G8	1916	V.	1918 Lost in North Sea.
G9	1916	V.	1917 Sunk (in error) off Norway.
G10	1916	V.	1923 Sold.
G11	1916	V.	1918 Wrecked off Howick.
G12	1916	V.	1923 Sold.
G13	1916	V.	1923 Sold.
G14	1917	Sc.	1921 Sold.

Sister ship: G15 cancelled. Bows were raised during the war.

H CLASS

(1) H1 Type.
Length: 150¼ ft. *Beam:* 15¾ ft. *Displacement:* 364/434 tons.
Diesel engines. 2 screws. 480/320 h.p. 13/10 knots.
Torpedo tubes: 4—18 in. (bow). *Gun:* (on some) 1—small. *Complement:* 22.

Number	Completed	Builder	
H1	1915	V.(Mont).	1921 Sold at Malta.
H2	1915	V.(Mont).	1921 Sold at Malta.
H3	1915	V.(Mont).	1916 Sunk in the Adriatic.
H4	1915	V.(Mont).	1921 Sold at Malta.
H5	1915	V.(Mont).	1918 Sunk, collision in Irish Sea.
H6	1915	V.(Mont).	1916 Stranded in Holland and became Dutch O8.
H7	1915	V.(Mont).	1921 Sold at Malta.
H8	1915	V.(Mont).	1921 Sold.
H9	1915	V.(Mont).	1921 Sold at Malta.
H10	1915	V.(Mont).	1918 Lost in North Sea.
H11	1915	Fore R.	1921 Sold.
H12	1915	Fore R.	1921 Sold.
H13	1915	Fore R.*	1917 Became Chilean H1.
H14	1915	Fore R.*	1919 Became R.C.N. CH14, 1925 scrapped.
H15	1915	Fore R.*	1919 Became R.C.N. CH15, 1925 scrapped.
H16	1915	Fore R.*	1917 Became Chilean H2.
H17	1915	Fore R.*	1917 Became Chilean H3.
H18	1915	Fore R.*	1917 Became Chilean H4.
H19	1915	Fore R.*	1917 Became Chilean H5.
H20	1915	Fore R.*	1917 Became Chilean H6.

* Built at the Fore River yard, U.S.A. with the intention of fitting armament in Canada. The U.S. Government however would not release them until 1917, when six were sent to Chile in payment for Chilean ships taken over in British yards. The Italian H1-H8 (H5 lost), were similar vessels.

H. Class Submarines at Portland. [*Cozens*

(2) H21 Type.

Length: 171 ft. *Displacement:* 440/500 tons.
Torpedo tubes: 4—21 in. (bow). Otherwise as H1 type.

Number	Completed	Builder	
H21	1918	V.	1926 Sold.
H22	1918	V.	1935 Sold.
H23	1918	V.	1934 Sold.
H24	1918	V.	1934 Sold.
H25	1918	V.	1935 Sold.
H26	1918	V.	1928 Sold.
H27	1919	V.	1935 Sold.
H28	1918	V.	1944 Sold.
H29	1918	V.	1926 Sank in D.Dy., 1927 sold.
H30	1918	V.	1935 Sold.
H31	1919	V.	1941 Lost off Brest.
H32	1919	V.	1944 Scrapped.
H33	1919	CL.	1944 Scrapped.
H34	1919	CL.	1945 Scrapped.
H41	1919	AW.	1920 Sold after being damaged in dock.
H42	1919	AW.	1922 Sunk, collision off Gibraltar.
H43	1919	AW.	1944 Sold.
H44	1920	AW.	1945 Sold.
H47	1919	WB.	1929 Sunk, collision off Welsh coast.
H48	1919	WB.	1935 Sold.
H49	1919	WB.	1940 Sunk by German ships off Dutch coast.
H50	1919	WB.	1945 Scrapped.
H51	1918	Pem.Dy.	1924 Discarded.
H52	1919	Pem.Dy.	1935 Sold.

Sister ships: H35-40, 45, 46 cancelled.

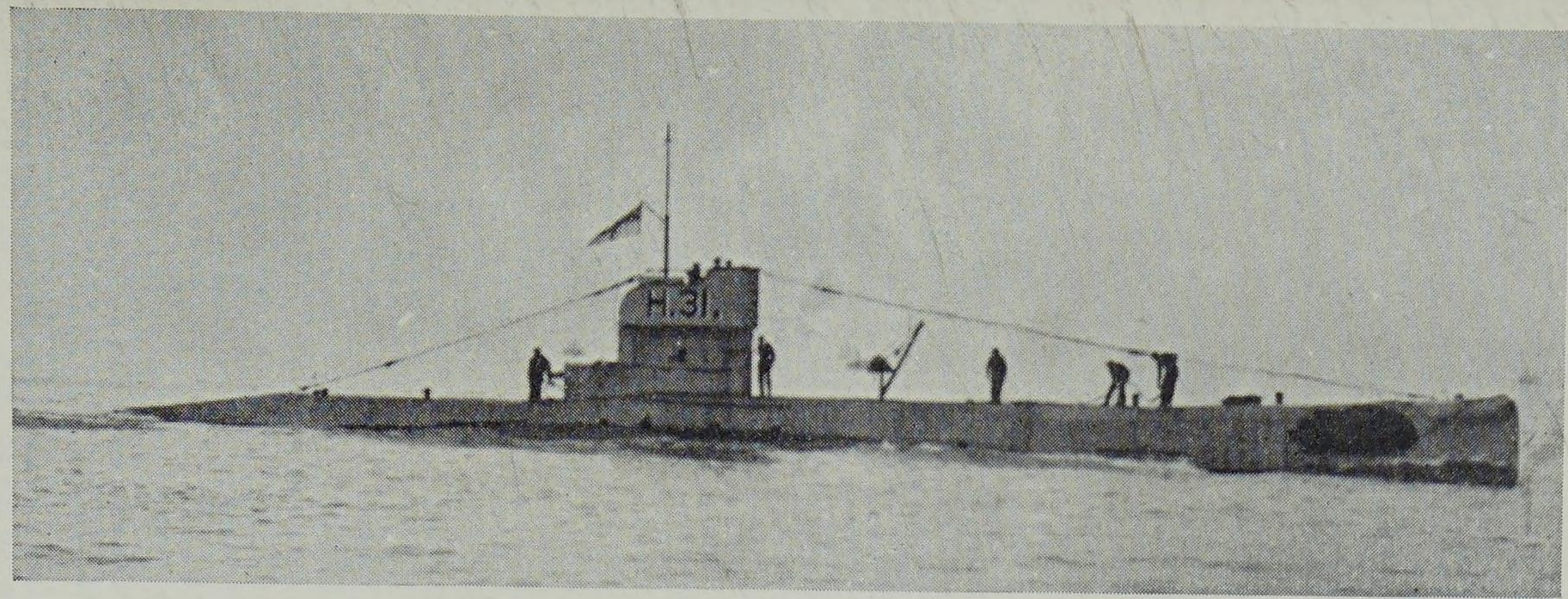
(There was no I class.)

J CLASS

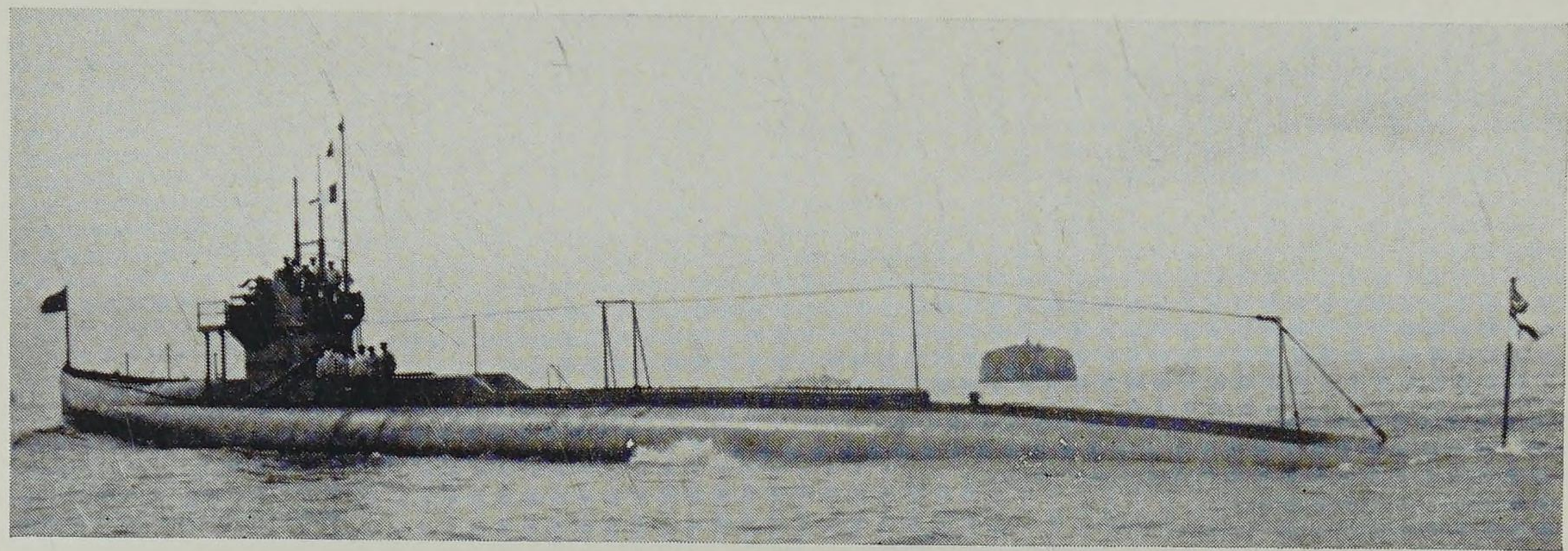
Length: 275½ ft. *Beam:* 23 ft. *Displacement:* 1,210/1,820 tons.
Diesel engines. 3 screws. 3,600/1,400 h.p. 19.5/9.5 knots.
Torpedo tubes: 6—18 (4 bow, 2 beam). *Guns:* 1 or 2—3 in. or 4 in.
Complement: 44.

(1)

Number	Completed	Builder	
J1	1916	P.Dy.	1919 to R.A.N., 1924 Sold.
J2	1916	P.Dy.	1919 to R.A.N., 1924 Sold.
J3	1916	Pem.Dy.	1919 to R.A.N., 1926 Dismantled.
J4	1916	Pem.Dy.	1919 to R.A.N., 1924 Sold.
J5	1916	D.Dy.	1919 to R.A.N., 1924 Sold.
J6	1916	D.Dy.	1918 Sunk (in error), in North Sea.



Left: H.M. Submarine H31.
[*Cozens*



Right: H.M. Submarine J1.

(2) Modified J type. As above but displacement (sub.) 1,760 tons and long superstructure with conning tower aft.

Number	Completed	Builder	
J7	1917	D.Dy.	1919 to R.A.N., 1929 scrapped.

Apart from size, the " J's " guns were mounted on the superstructure thus distinguishing them from the " G's ".

The " G " class, our first ocean-going submarines, were followed by the much larger " J " class whose speed of 19.5 knots made them the fastest in existence. These, in turn, were soon overshadowed by the 10,000 h.p. 24-knot steam driven " K " class " Fleet submarines ". The " J's " and " K's " owed much to experience gained with the *Nautilus* and *Swordfish*. The " M " class " Submarine-Monitors " were unique in mounting 12 in. guns. The " K's " and " M's " were the most remarkable submarines produced during the war.

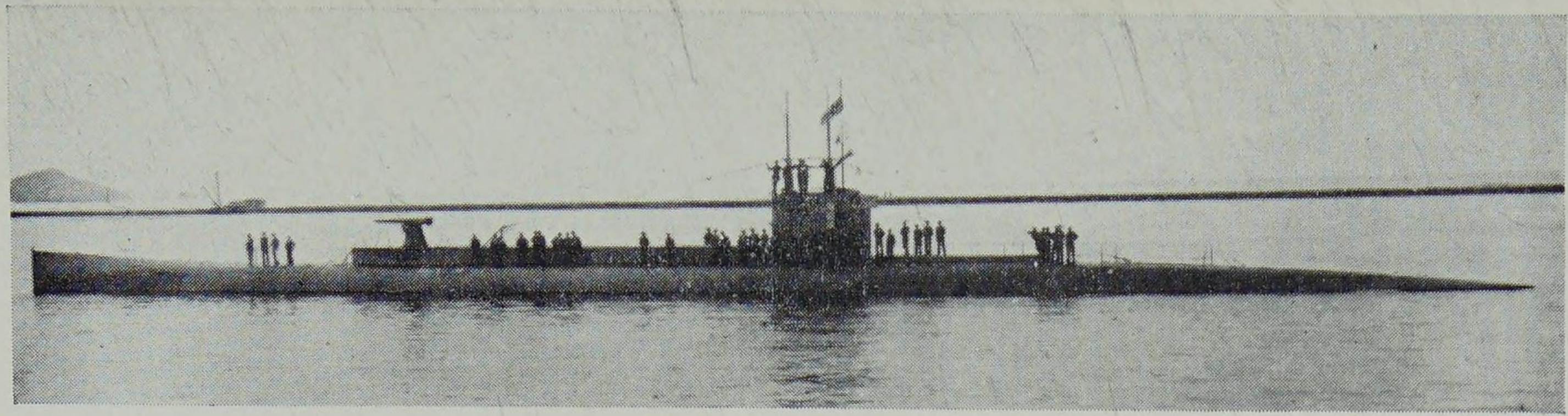
K CLASS

Length: 338 ft. *Beam:* 26⅔ ft. *Displacement:* 1,883/2,565 tons.
Geared turbines. 2 screws. 10,500/1,400 h.p. 24-25/9 knots.
Also 1—800 h.p. diesel to boost when diving or surfacing.
Torpedo tubes:* 8—18 in. (4 bow, 4 beam). *Guns*:* 1 or 2—4 in., 1—3 in. A.A.
Complement: 50-60.

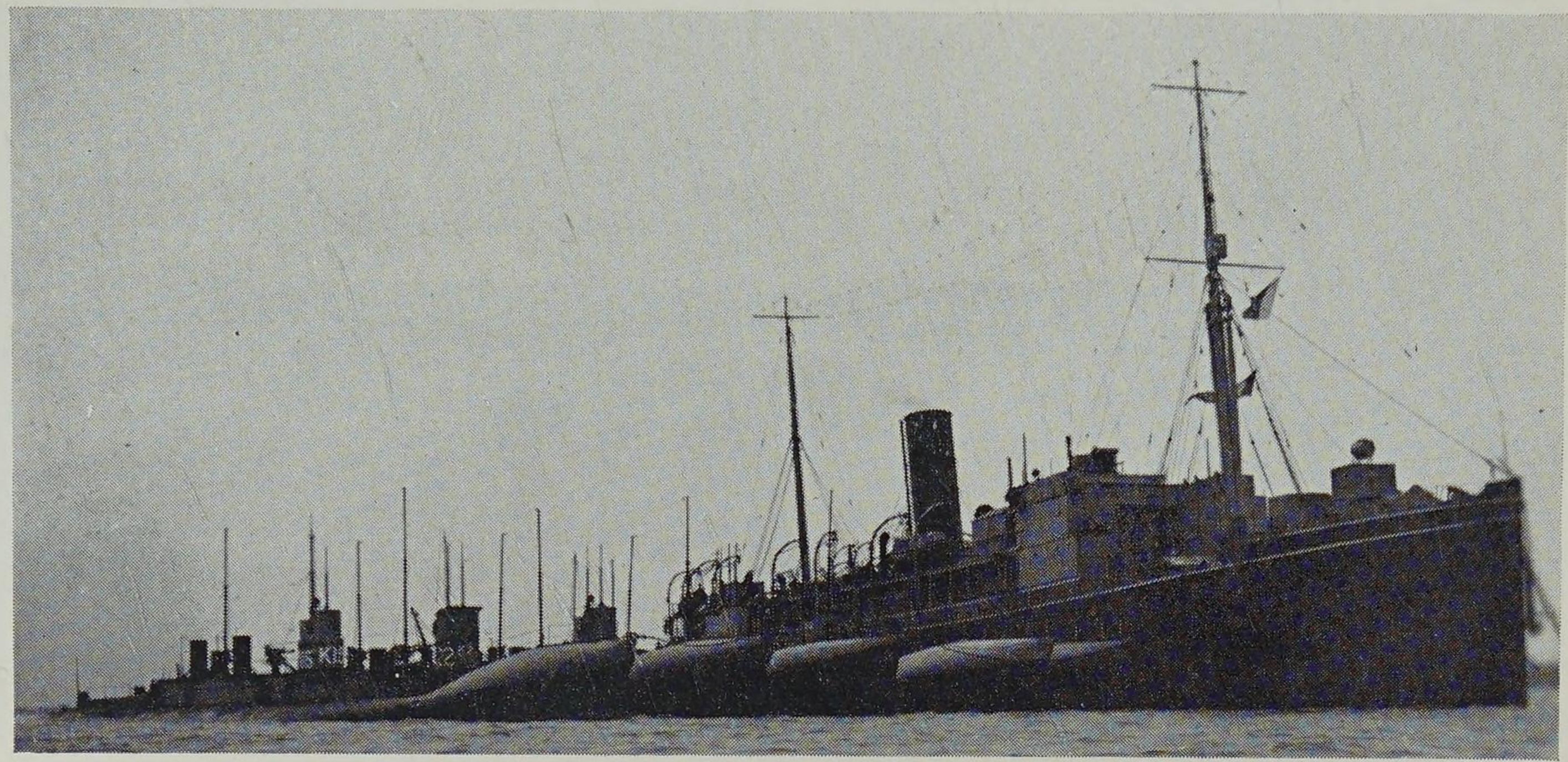
* K5, 12, differed in having one gun before the conning tower and K17 had 2—5.5 in. in place of 4 in. As built the two 4 in. guns were mounted fore and aft of the superstructure and the 3 in. upon it. When modified with bulbous bows, one 4 in. was removed on most of them and the other mounted on the superstructure. At the same time two additional 18 in. torpedo tubes mounted in the superstructure were taken out.

Number	Completed	Builder	
K1	1917	P.Dy.	1917 Sunk, collision in the North Sea.
K2	1917	P.Dy.	1926 Sold.
K3	1916	V.	1921 Sold.
K4	1917	F.	1918 Sunk, collision in the North Sea.
K5	1917	P.Dy.	1921 Foundered off Ushant.
K6	1917	D.Dy.	1926 Sold.
K7	1917	D.Dy.	1921 Sold.
K8	1917	V.	1923 Sold.
K9	1917	V.	1926 Sold.
K10	1917	V.	1921 Sold.
K11	1917	AW.	1921 Sold.
K12	1917	AW.	1926 Sold.
K13	1917	F.	1917 Foundered in the Gareloch, raised to be K22.
K14	1917	F.	1926 Sold.
K15	1918	Sc.	1924 Sold.
K16	1918	WB.	1924 Sold.
K17	1917	V.	1918 Sunk, collision in the North Sea.
(**K22** (see K13 above)			1926 Sold.)

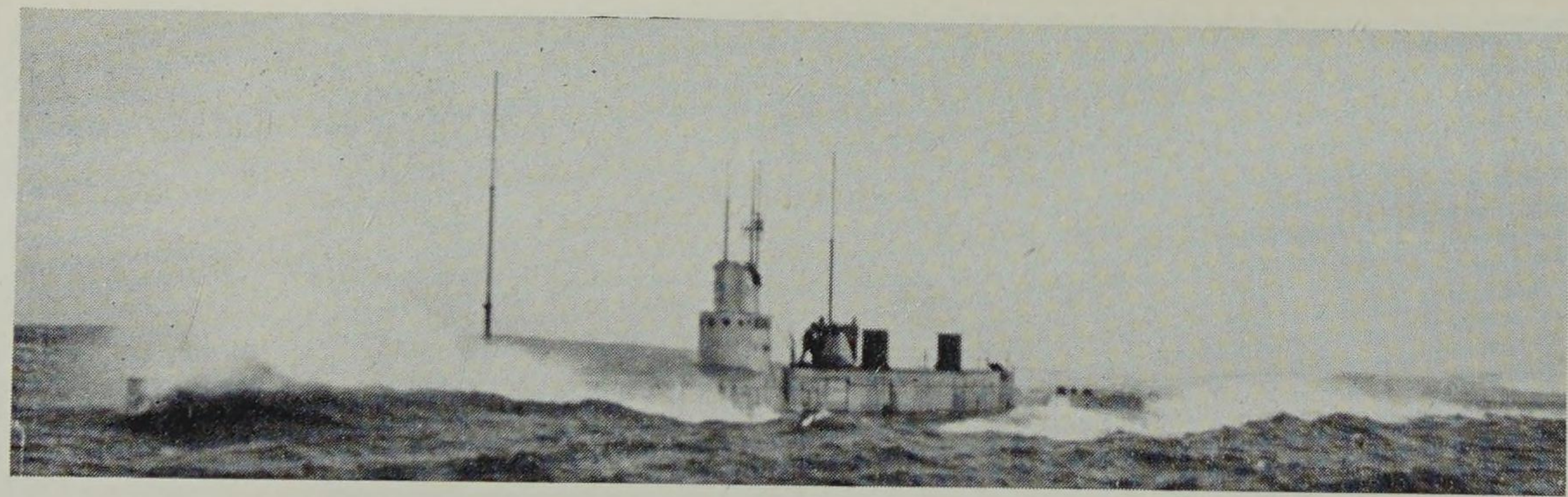
Note: Nos. K18-K21 were originally allotted to M1-M4.



Left: H.M. Submarine J7.
[*I.W.M.*

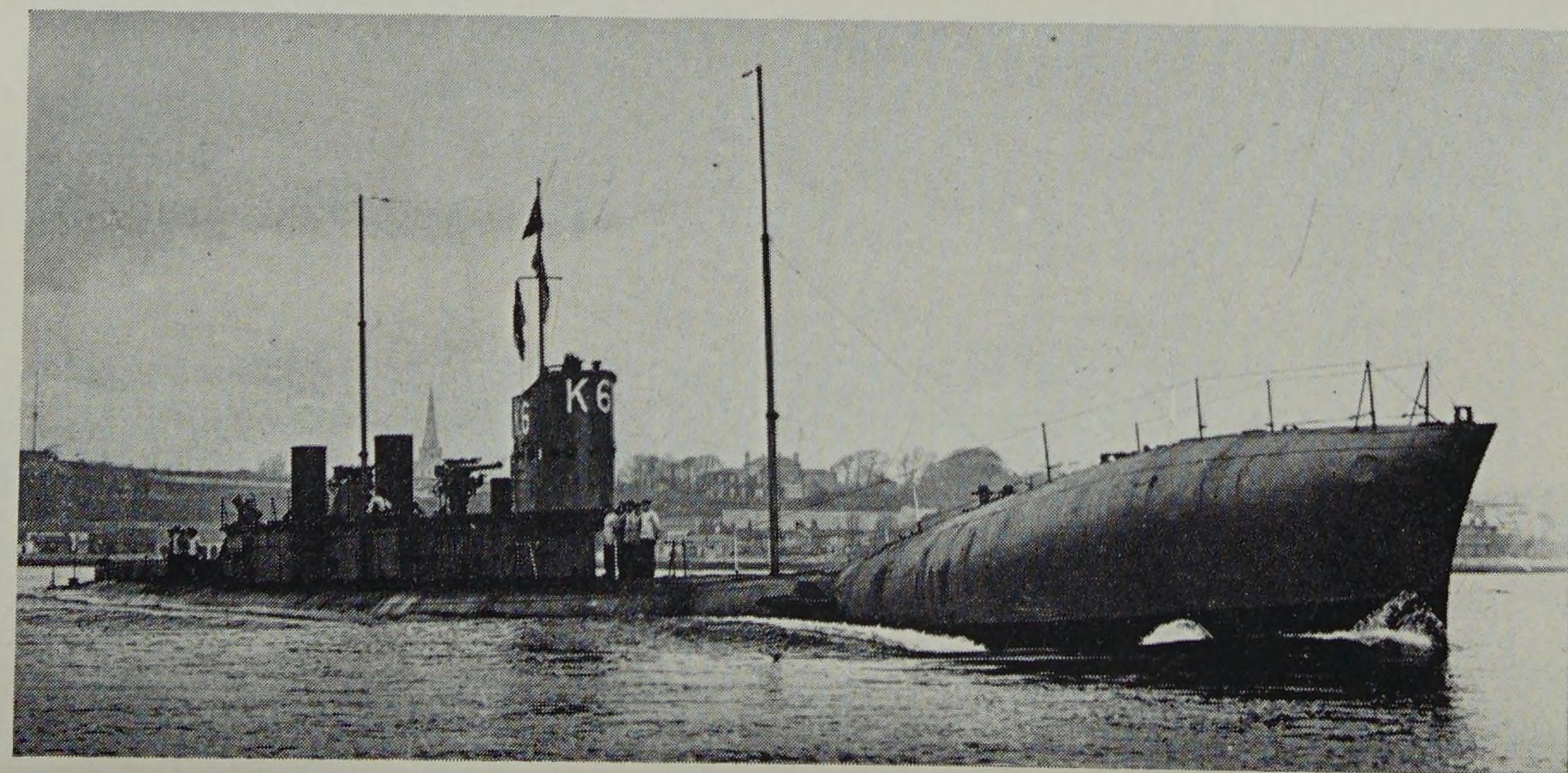


Right: H.M.S. *Pandora* and K Class Submarines
[*Cozens*



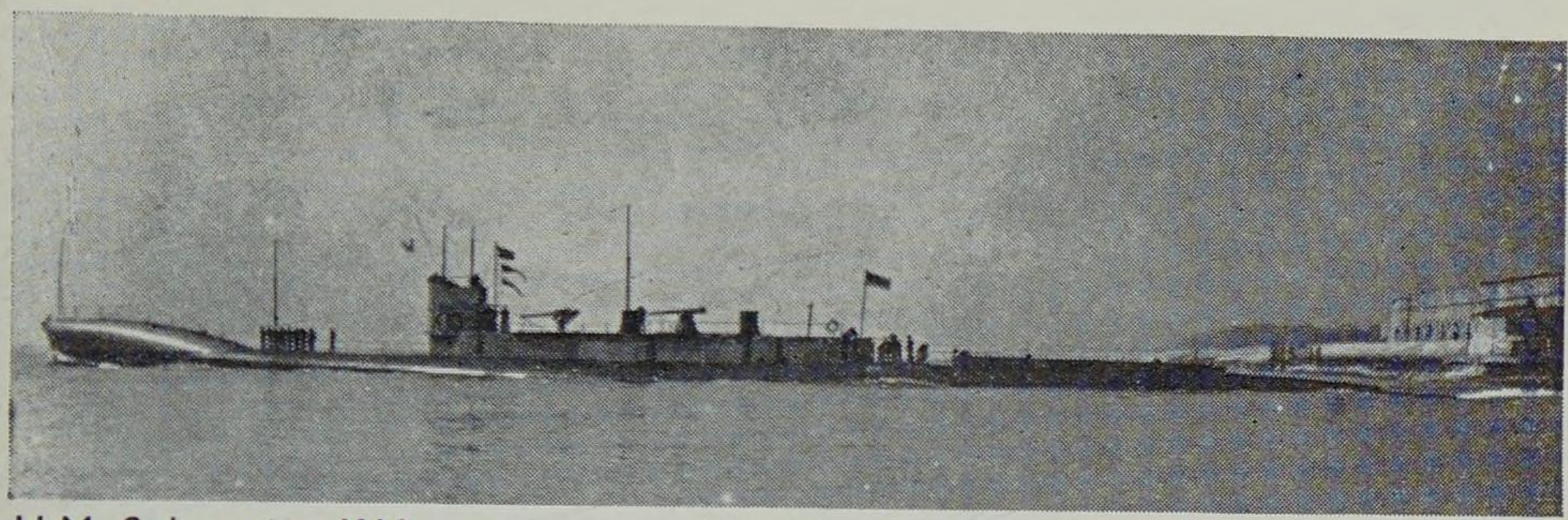
Left: H.M. Submarine K3 as built.

[*I.W.M.*

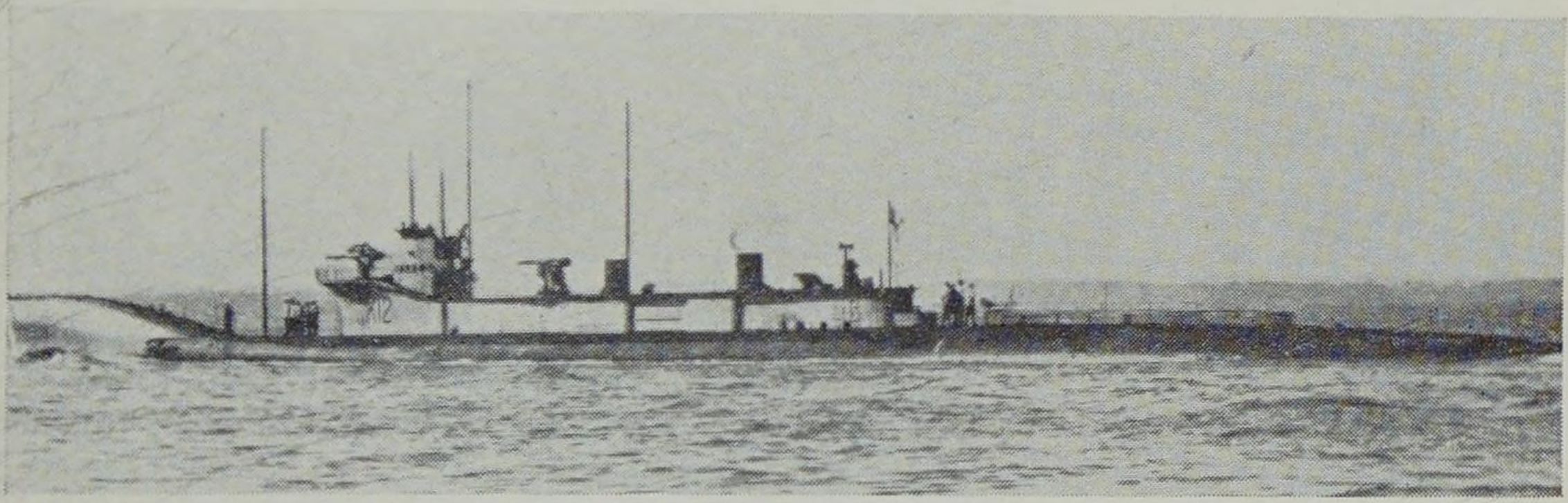


Right: H.M. Submarine K6 with altered bows.

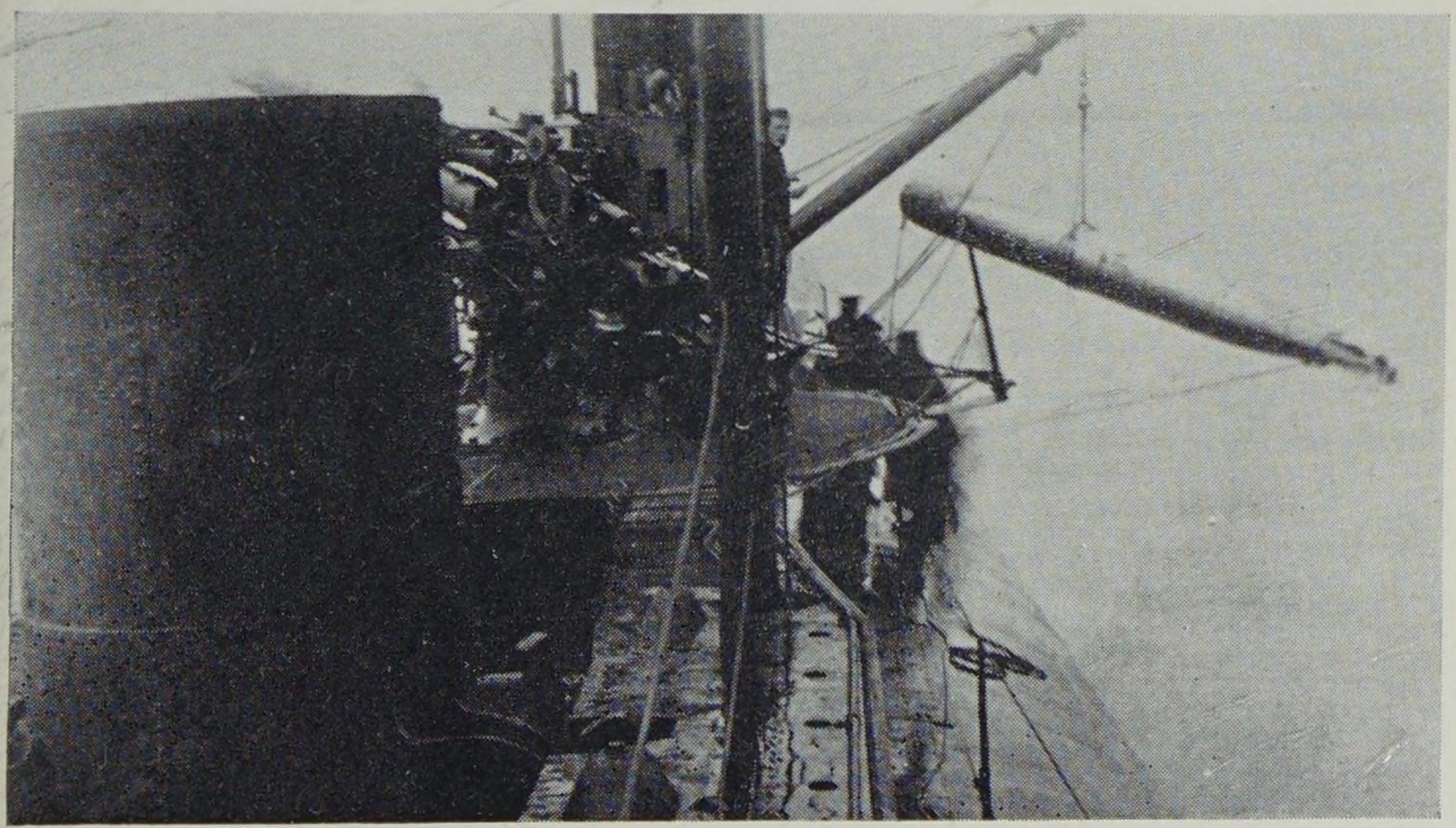
[*N.P.C.*



H.M. Submarine K10. [Cozens



H.M. Submarine K12 with gun before the conning tower. [Cozens



K Class submarine taking on torpedos. [N.P.C.

IMPROVED K CLASS (or K23 class)

Length: 351½ ft. *Beam:* 28 ft. *Displacement:* 2,140/2,770 tons.
Geared turbines. 2 screws. 10,000/1,400 h.p. 23.5/9 knots.
Torpedo tubes: 10—21 in. (?) (4 bow, 4 beam, 2 stern). *Guns:* 3—4 in.
Complement: 65.

Number	Completed	Builder	
K26	1293	V./C.Dy.	1931 Sold at Malta.

Sister ships: K23, 24, 25, 27, 28 cancelled. K26 cruised to Colombo and back in 1924.

M CLASS

Length: 296-305 ft. *Beam:* 24½ ft. *Displacement:* 1,600/1,950 tons.
Diesel engines. 2 screws. 2,400/1,600 h.p. 15.5/9.5 knots.
Torpedo tubes: 4—18 in. (bows). *Guns:* 1—12 in., Nil or 1—3 in. A.A.
Complement: 60-70.

Number	Completed	Builder	
M1	1918	V.	1925 Sunk, collision off Start Point.
M2	1918	V.	1927 Altered to carry seaplane. 1932 Foundered.
M3	1920	AW.	1927 Altered to ML. 1932 Sold.

Sister ship: M4 sold uncompleted in 1921.

L CLASS

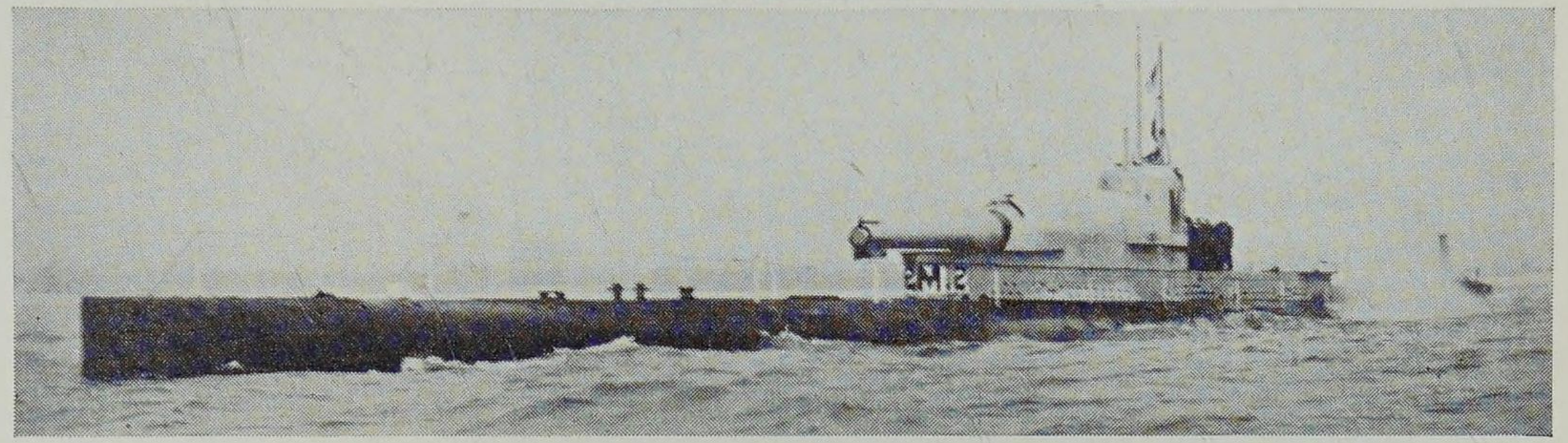
(1) L1 type.

Length: 231 ft. *Beam:* 23½ ft. *Displacement:* 890/1,070 tons.
Diesel engines. 2 screws. 2,400/1,600 h.p. 17.5/10.5 knots.
Torpedo tubes: 6—18 in. (4 bow, 2 beam). *Gun:* 1—3 in. or A.A. or 4 in.
Complement: 36.

Number	Completed	Builder	
L1	1917	V.	1930 Sold.
L2	1917	V.	1930 Sold.
L3	1918	V.	1930 Sold.
L4	1918	V.	1934 Sold.
L5	1918	SH.	1930 Sold.
L6	1918	WB.	1935 Sold.
L7	1917	CL.	1930 Sold.
L8	1918	CL.	1930 Sold.

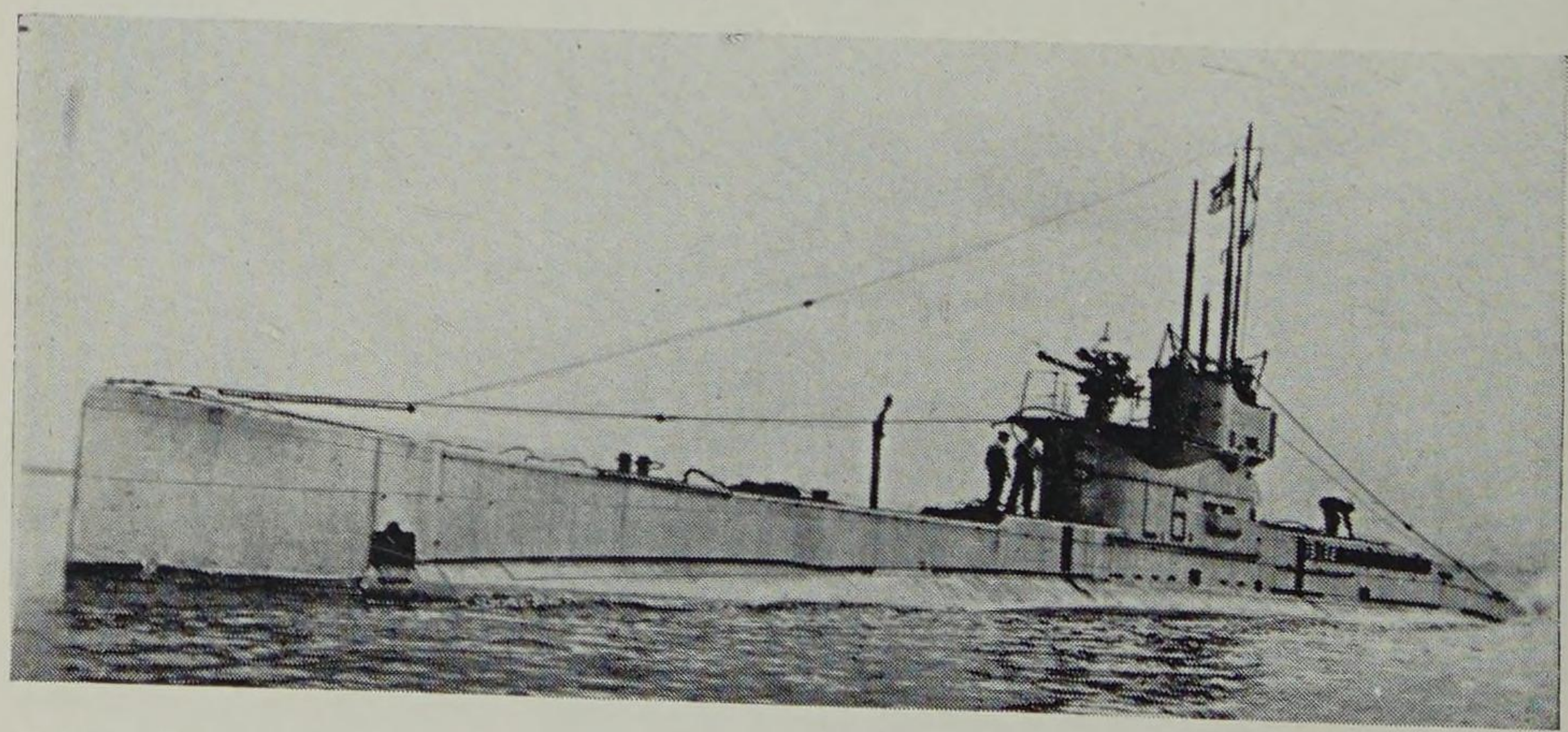
L1 and 2 were laid down as E57 and 58.

Left: H.M. Submarine M1.
[*I.W.M.*



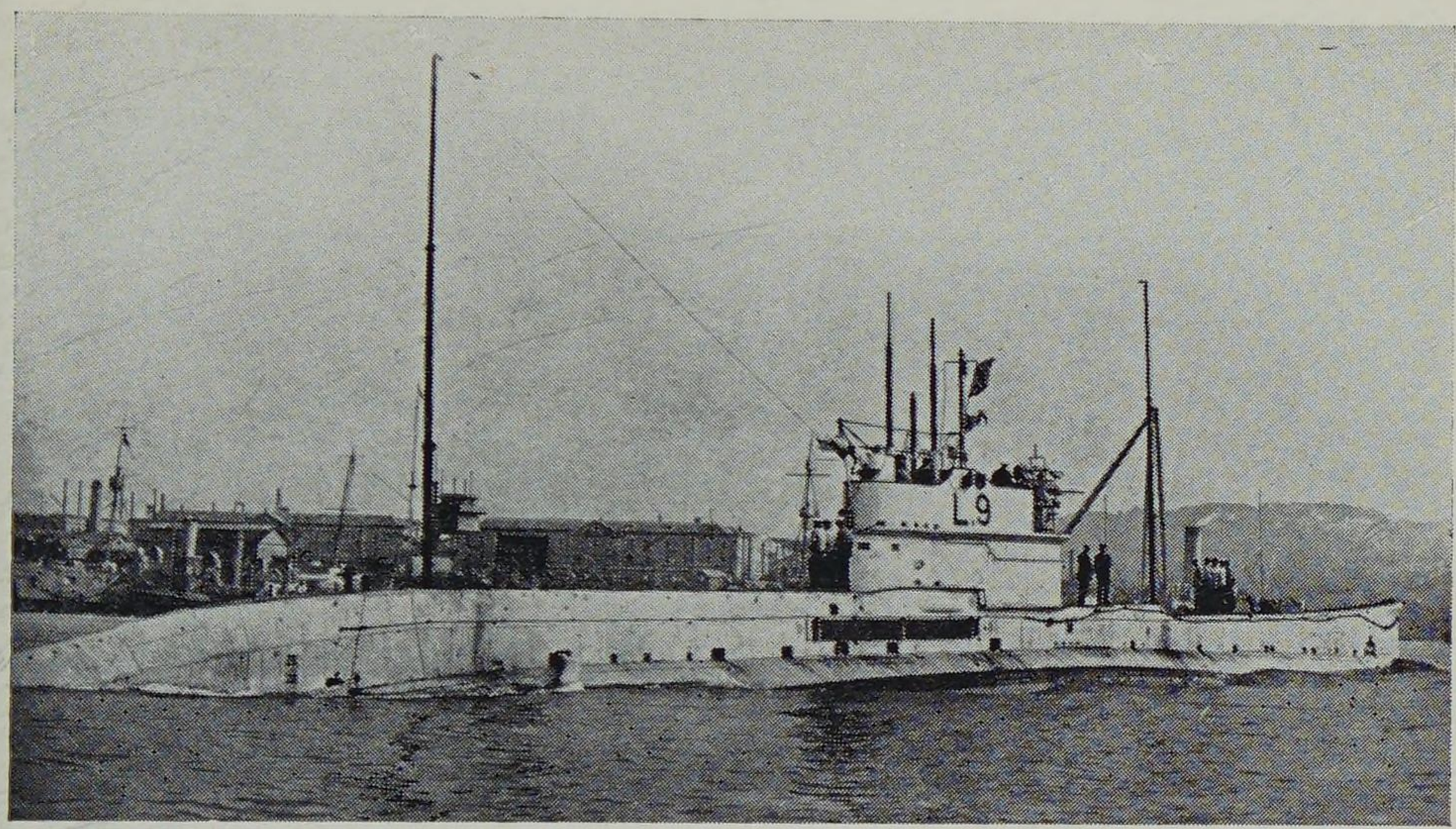
Right: H.M. Submarine M2.
[*Cozens*

The 12 in. guns of submarines M2 and M3.

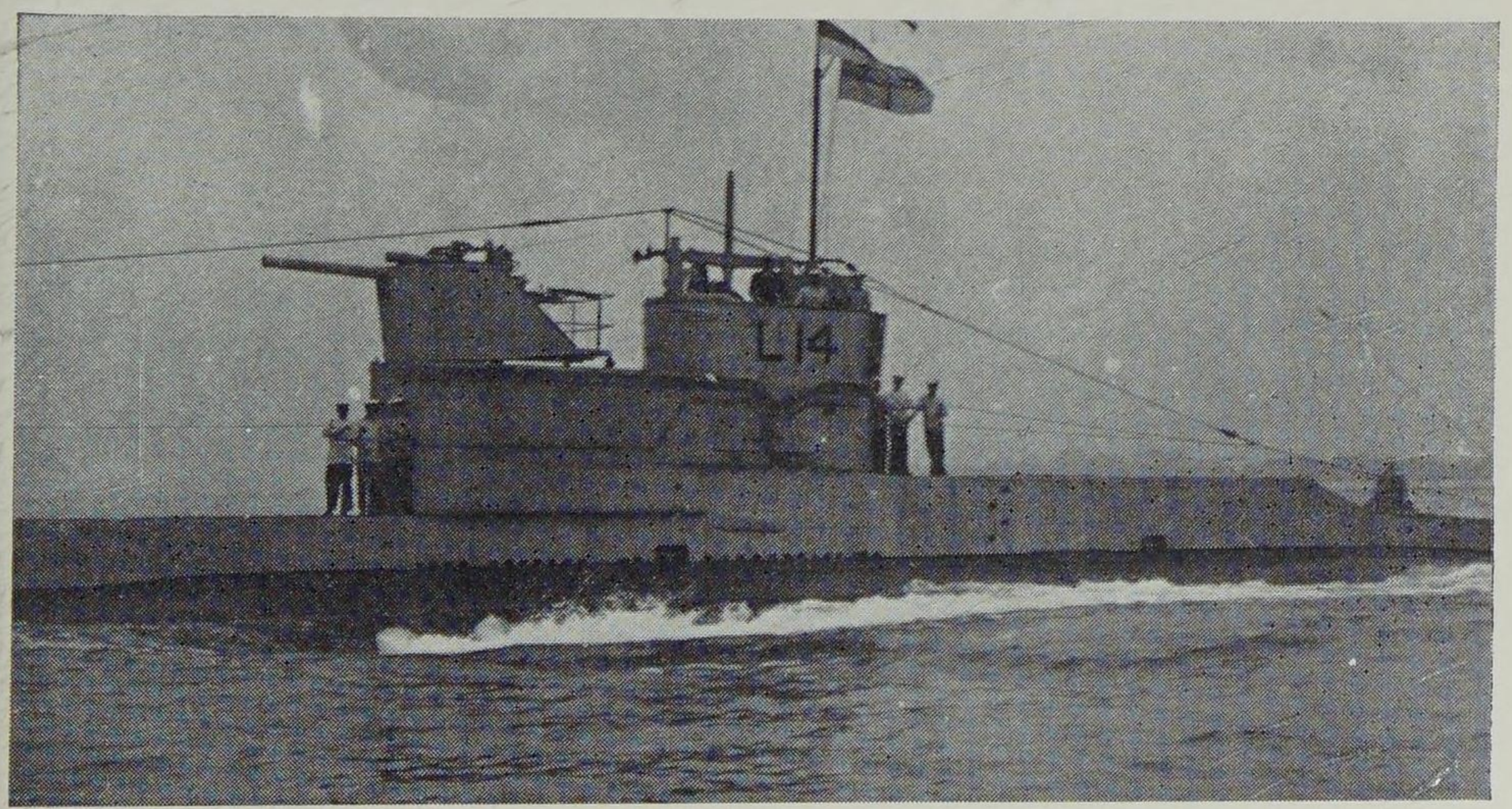


H.M. Submarine L6.

[N.P.C.



H.M. Submarine L9. [*N.P.C.*



Part of H.M. Submarine L14 (ML). [*Cozens*

(2) L9 type.

Length: 238½ ft. *Displacement:* (sub.) 1,080 tons. *Torpedo tubes:* 4—21 in. (bow), 2—18 in. (beam). Otherwise as L1. Minelayers carried 16 mines in vertical chutes, eight on each side amidships. The 18 in. beam tubes were removed on L14 and L17.

Number	Completed	Builder	
L9	1918	Dny.	1923 Foundered in typhoon at Hong Kong. Raised and sold.
L10	1918	Pem.Dy.	1918 Sunk by German destroyer off Texel.
L11 (ML)	1918	V.	1932 Sold.
L12 (ML)	1918	V.	1932 Sold.
L14 (ML)	1918	V.	1934 Sold.
L15	1918	F.	1932 Sold.
L16	1918	F.	1934 Sold.
L17 (ML)	1918	V.	1934 Sold.
L18	1919	V.	1936 Sold.
L19	1919	V.	1937 Sold.
L20	1919	V.	1935 Sold.
L21	1920	V.	1939 Sold.
L22	1921	V.	1935 Sold.
L23	1924	V./C.Dy.	1946 Sold.
L24	1920	V.	1924 Sunk, collision off Portland.
L25 (ML)	1927	V./Sh.Dy.	1935 Sold.
L26	1926	V./D.Dy.	1946 Sold.
L27	1925	V./Sh.Dy.	1947 Sold.
L32	—	V.	1920 Sold uncompleted.
L33	1924	SH.	1932 Sold.

Sister ships: L28-31, L34-36 cancelled.

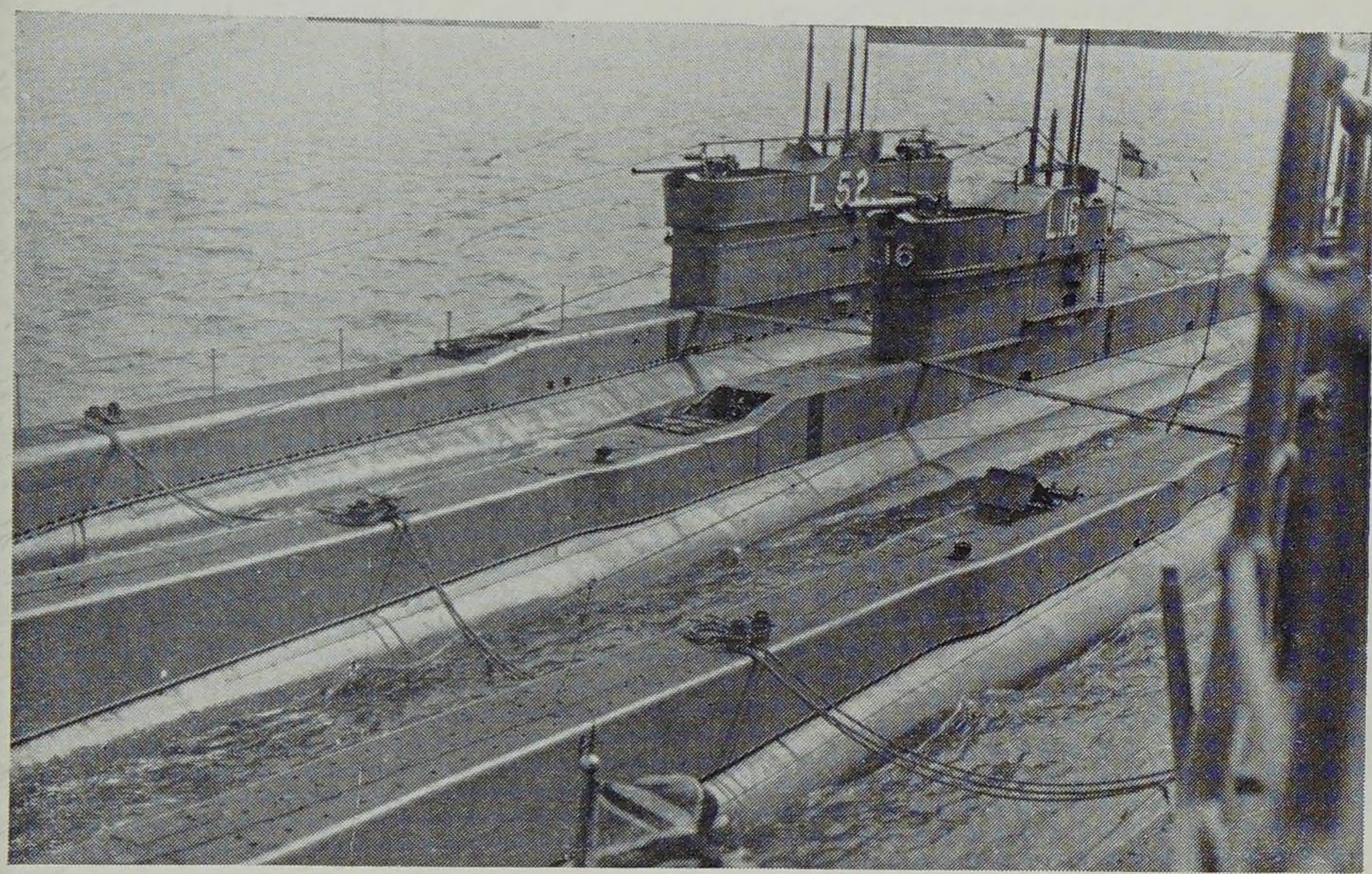
There was no L13 and L37-49 were not ordered. L24 and 25 had small conning towers like the " E " class. There were differences in deck profile and superstructure through the " L " class.

(3) L50 type.

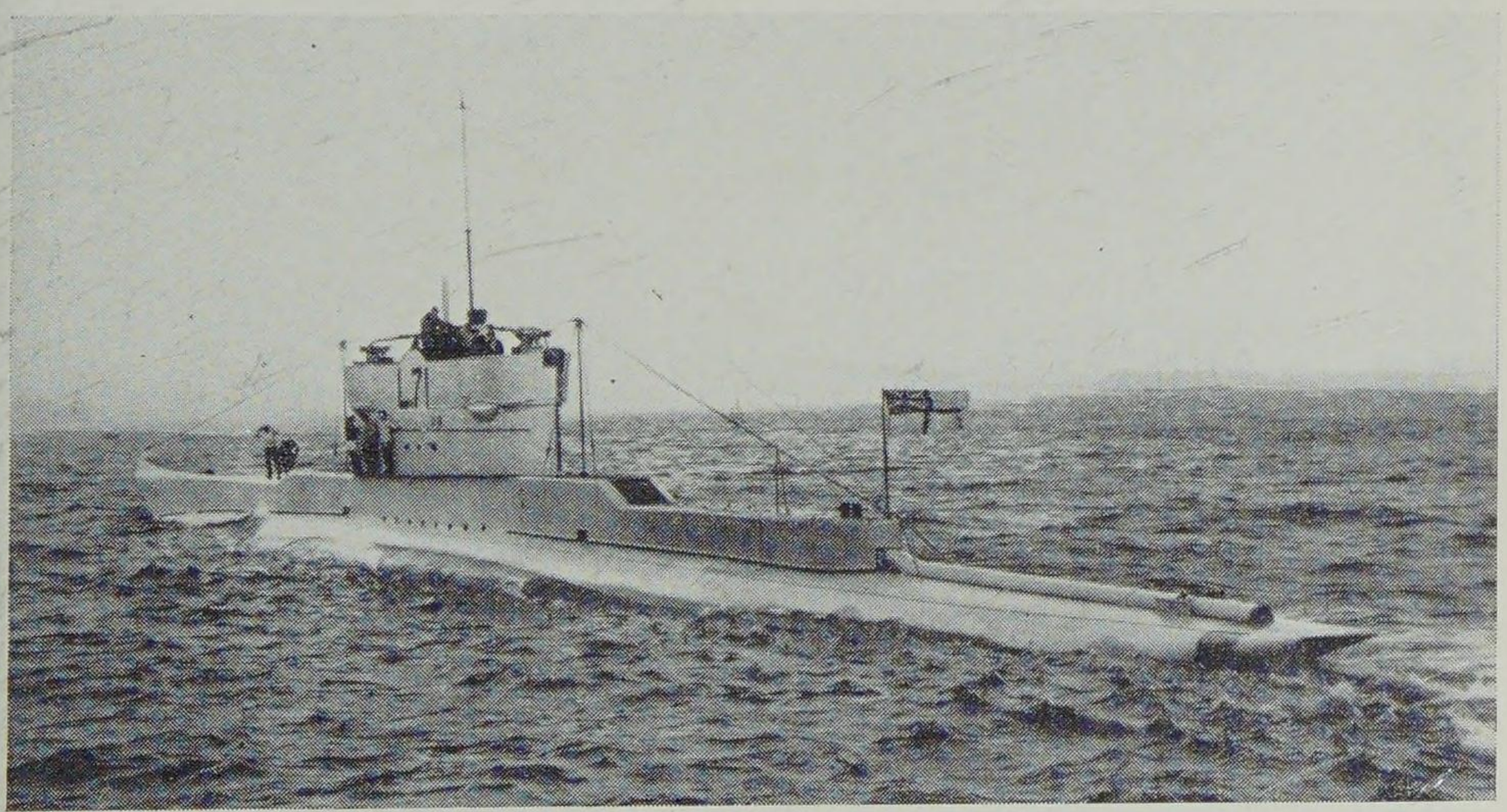
Length: 235 ft. *Displacement:* 960/1,150 tons. *Torpedo tubes:* 6—21 in. (bow). *Guns:* 2—4 in. *Complement:* 40. Longer superstructure. Otherwise as L1.

L52	1919	AW.	1935 Sold and wrecked off Barry.
L53	1924	AW./C.Dy.	1939 Sold.
L54	1924	Dny./D.Dy	1939. Sold
L55	1918	F.	1919 Sunk in Balic. 1928-31 Salved by Russians.
L56	1919	F.	1938 Sold.
L69	1923	W./Ros.Dy	1939 Sold.
L70	—	WB.	1920 Sold uncompleted.
L71	1919	Sc.	1938 Sold.

Sister ships: L50, 51, 57-68, 72-74 cancelled. Material from L67 and 68 was used in the construction of the Jugoslav *Hrabri* and *Nebojsa* (AW.), completed in 1928.



L Class Submarines. [Cozens



H.M. Submarine L71. [I.W.M.

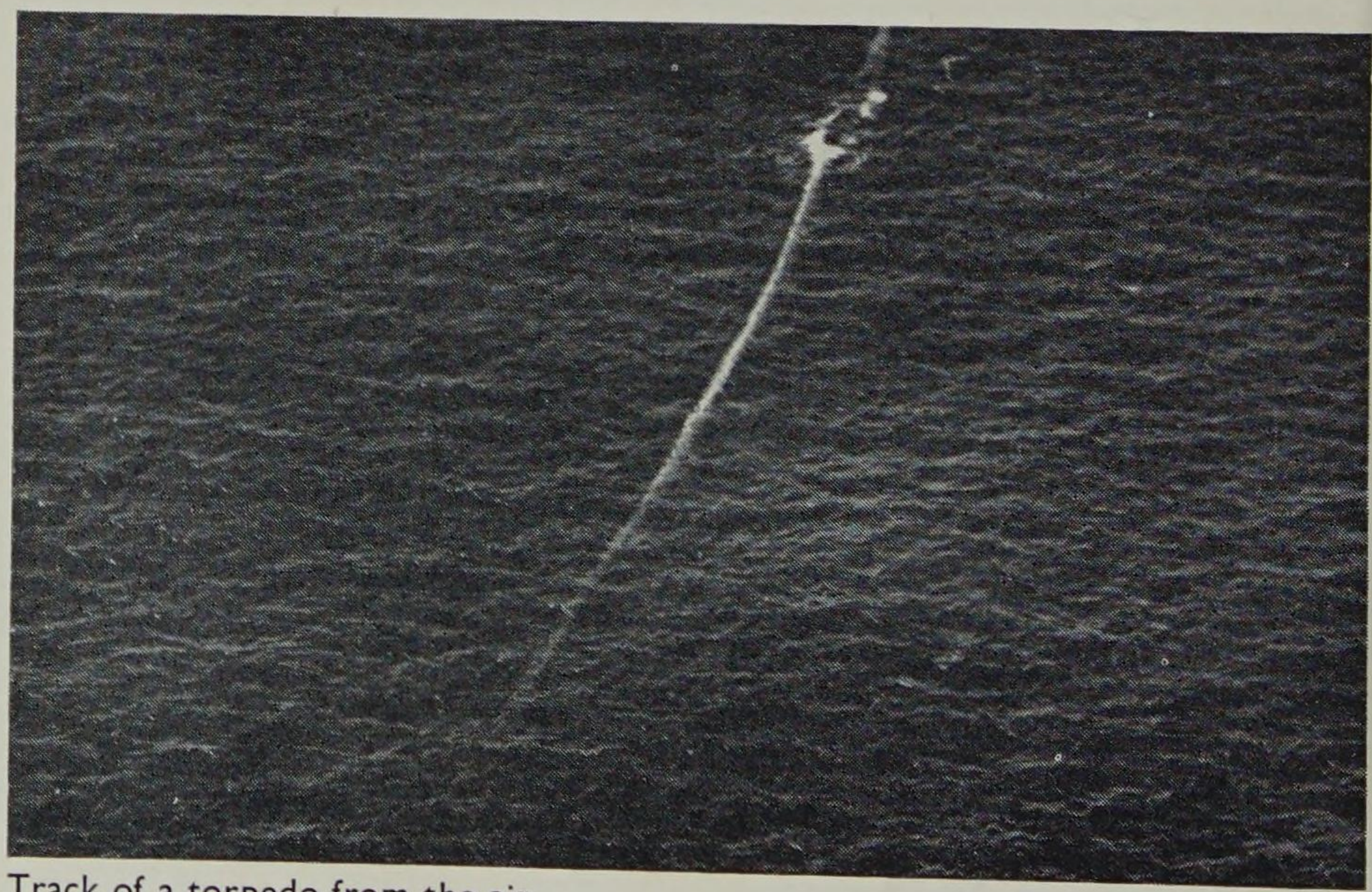
The "L" class were enlargements of the "E" class and a continuation of the standard British type. Finally the "R" class however were quite a new departure. They were the first ships specially built to hunt U-boats and were much faster under water than on the surface.

R CLASS

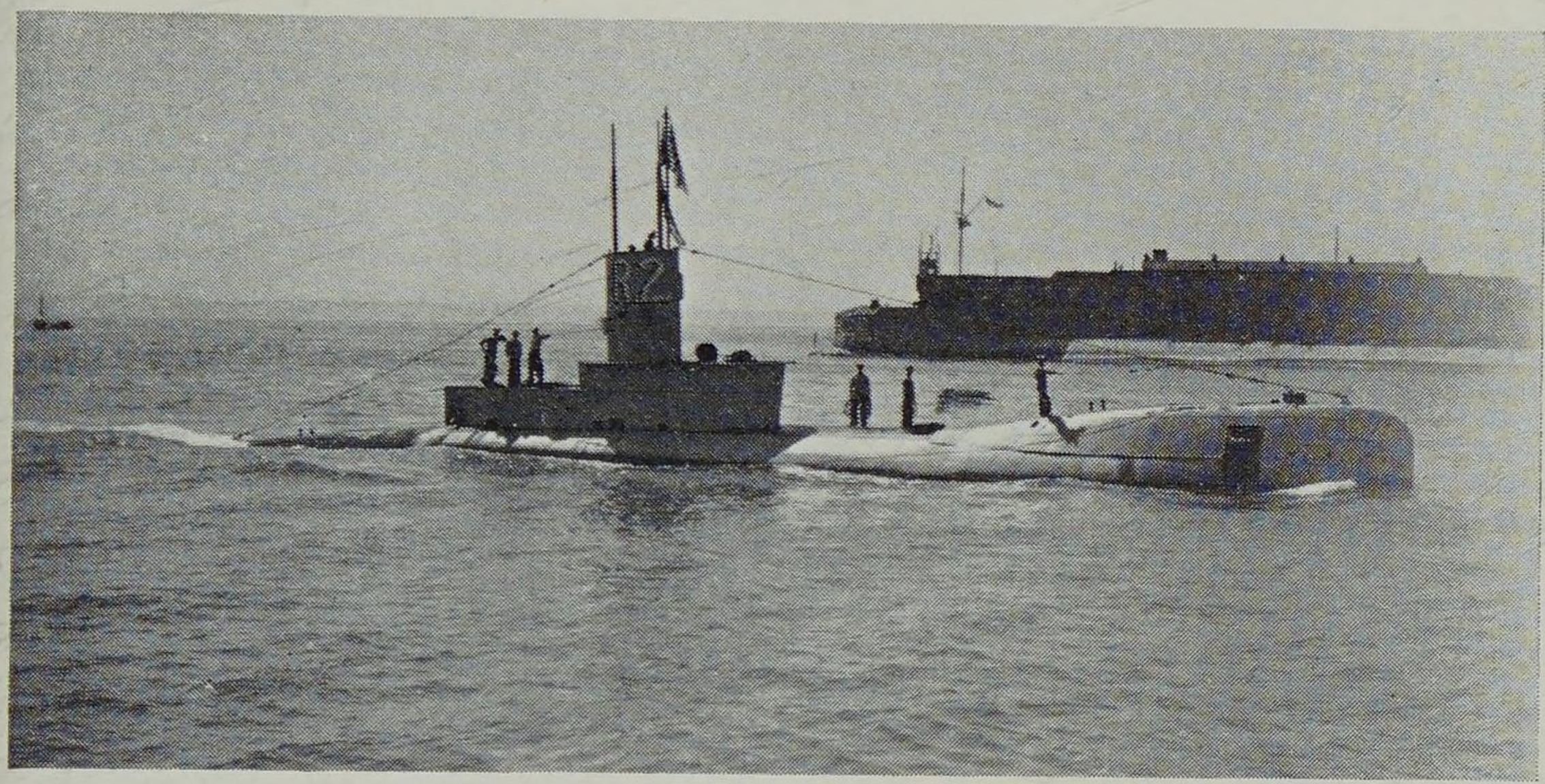
Length: 163 ft. *Beam:* 15¾ ft. *Displacement:* 420/500 tons.
Diesel engine. 1 screw. 240/1,200 h.p. 9.5/15 knots.
Torpedo tubes: 6—18 in. (bow). *Gun:* 1—4 in. *Complement:* 22.

Number	*Completed*	*Builder*	
R1	1918	C.Dy.	1923 Sold.
R2	1918	C.Dy.	1923 Sold.
R3	1919	C.Dy.	1923 Sold.
R4	1919	C.Dy.	1934 Sold.
R7	1918	V.	1923 Sold.
R8	1918	V.	1923 Sold.
R9	1918	AW.	1923 Sold.
R10	1919	AW.	1929 Sold.
R11	1918	CL.	1923 Sold.
R12	1918	CL.	1923 Sold.

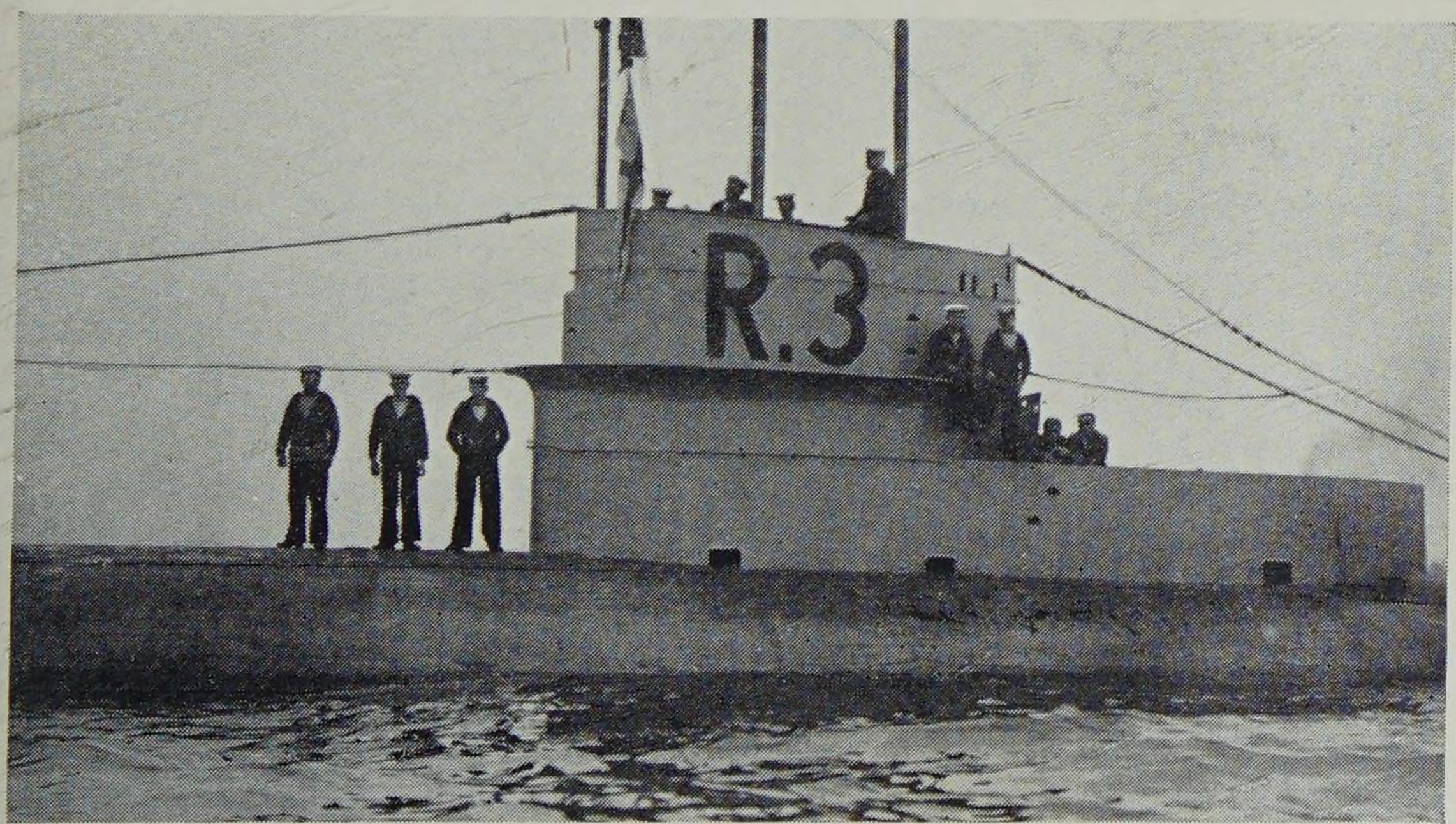
Sister ships;: R5 and 6 cancelled.



Track of a torpedo from the air.



H.M. Submarine R2. [Cozens



Part of H.M. Submarine R3. Cozens

German Submarine Development 1906-1918

EARLY German views on the submarine were cautious and realistic. Petrol was banned as being an unsafe fuel, so their first vessels had Körting heavy oil engines which often produced clouds of smoke and occasional showers of sparks from their exhausts. In 1908 the development of 850 h.p. diesel engines began: a two-stroke by Krupp and a four-stroke by the M.A.N. works, where much of the progress on modern diesels originated. These engines were ready for submarine service in 1911-12.

The first submarines built in Germany were the three " Karp " class ordered by Russia in 1904, but U1, the first for the German Navy, was not completed until the end of 1906. Double-hull construction and twin screws were adopted and thus, in spite of a late start, the early U-boats were very up-to-date and were considered roughly equivalent to our " D " class. The first diesel-engined ship, U19, completed in 1913, was on active service throughout the war. In spite of many narrow escapes her double-hull build proved capable of withstanding great punishment. Submarine hulls were tested for a depth of 50 metres (164 ft.), but on a number of occasions accomplished dives to 275 ft. U19 could also remain at sea for 4,000 miles or operate nearly 2,000 miles from base—a fact unrealised outside Germany.

By the outbreak of war therefore the U-boat had become a formidable vessel. Fortunately the Germans, dominated by the Army (who banked on victory in a few months), did not realise how formidable; nor were they aware that their U-boats had scored an early tactical victory in causing the Grand Fleet to leave its base at Scapa for a time, as a result of their radius of action having been greatly under-estimated.

Once the war on land became stabilised the Germans decided to step up submarine activity in the North Sea, Baltic and also the Mediterranean. Two new types were introduced, the UB (coastal) and UC (small minelayer) series, both of which were comparatively simple and suitable for rapid production. The earliest of these small vessels, UB1-17 and UC1-15, were given heavy oil engines of makes already in production, whilst the latter class carried mines only, without torpedo armament.

The very serviceable boats of the " Mittel-U " type (650-850 tons*), U19's successors, were built throughout the years 1913-1917 but not in very great numbers. Improvements included the " shark's head " bows surmounted by net-cutters, and the overall provision of jumping wires, all these proving effective against net obstructions. To save torpedoes for important targets, smaller ships were sunk by gunfire whenever possible; hence the 3.4 in. gun was superseded by the 4.1 in. and, on the largest classes, the 5.9 in., which could outrange anything likely to be mounted on defensively armed merchant ships and Q-ships.

In 1915-16 the Mediterranean became an ideal U-boat hunting ground and, by the beginning of 1917, 25 of them (including UB and and UC types) were operating, in addition to Austrian vessels, from Adriatic ports. The smaller UB's and UC's were dismantled and transported by rail to Pola for re-erection.

Included in the U series were two important variants, the long-distance minelayers and long range cruisers. The minelayers were U71-80 (UE-I type), and, at the end of the war, U117-126, (UE-II type) which discharged mines from two horizontal stern tubes. U71-80 of 1915-16 could lay mines far beyond the

* Surface displacements are given in these notes.

UC boats' range, in areas where such activity was unsuspected before the existence of these ships became known. It is therefore possible that H.M.S. *Hampshire*, with Lord Kitchener on board, was sunk by a mine from one of them, U75. Whereas German mines were effective, ours were not, until the advent of the H2 type late in 1917, and U-boat commanders were not unduly alarmed when forced on occasion to penetrate our minefields. However the situation was not altogether one-sided, since some U-boats were destroyed by the explosion of their own mines.

Another new German conception was the submarine merchant ship (Handels U-Boot), of 1,500 tons. The first of these, *Deutschland*, made two trade voyages to the U.S.A. in 1916 and achieved some propaganda success by demonstrating a new way of running our blockade. With the approach of all-out U-boat warfare these vessels, though slow, were armed and converted to the U151 class cruisers. Having a range of 13,000 miles they could operate on distant stations. In April 1917 the U.S.A. entered the war and large U-cruisers of 1,000-2,000 tons were developed, to operate off the American coastline. Fortunately most of this group, U117-150, were too late to see much service. U117-126, as mentioned previously, were also minelayers, their all-round activities giving rise to the term " omnibus " type.

As the U series grew in size, so did the UB's and UC's. By 1917 UB boats of over 500 tons, equivalent to the U-boats of 1911-12, were coming into service. The UC's were not much smaller, the 64 UCII class ships of 1916-17 being over 400 tons, whilst the UCIII class of 1918 approached 500 tons. All these later vessels were twin-screw diesels with adequate torpedo and gun armament, greatly superior to the early UBI's and UCI's.

The largest number of U-boats known to have been at sea at one time was 61, in June 1917. To maintain operations on this scale would require nearly 200 vessels (as estimated before the war). Apart from the replacement of losses, much time had to be spent in docking, training, replenishment and in moving to and from war stations. Before the days of nuclear generators and peroxide turbines, the great weakness of the submarine was its dependence on heavy batteries for submerged running. Any increase in battery power had to be balanced by reduced fuel capacity and armament, thereby seriously decreasing the vessels' effectiveness. Broadly speaking, the larger submarines of World War I could travel submerged for 100 miles at 3 knots (=30 hours), or for about 20 miles at 8 knots (=2½ hours). Prolonged pursuit by hydrophone contact could therefore eventually bring the ship to the surface with its batteries exhausted.

In the following lists the abbreviations for the German shipyards concerned are:—

Atlas	ATLAS WORKS (BREMEN).
B. & V.	BLOHM & VOSS (HAMBURG).
Dz.Dy.	DANZIG DOCKYARD.
Flen.	FLENSBURG SHIPYARD.
Ger.	KRUPP'S GERMANIA YARD (KIEL).
Reh.	REHEIRSTIEG (HAMBURG).
Stu.	STULCKEN (HAMBURG).
Vul.(B).	BREMER-VULKAN (VEGESACK).
Vul.(H).	VULKAN (HAMBURG).
Wes.	WESER (BREMEN .

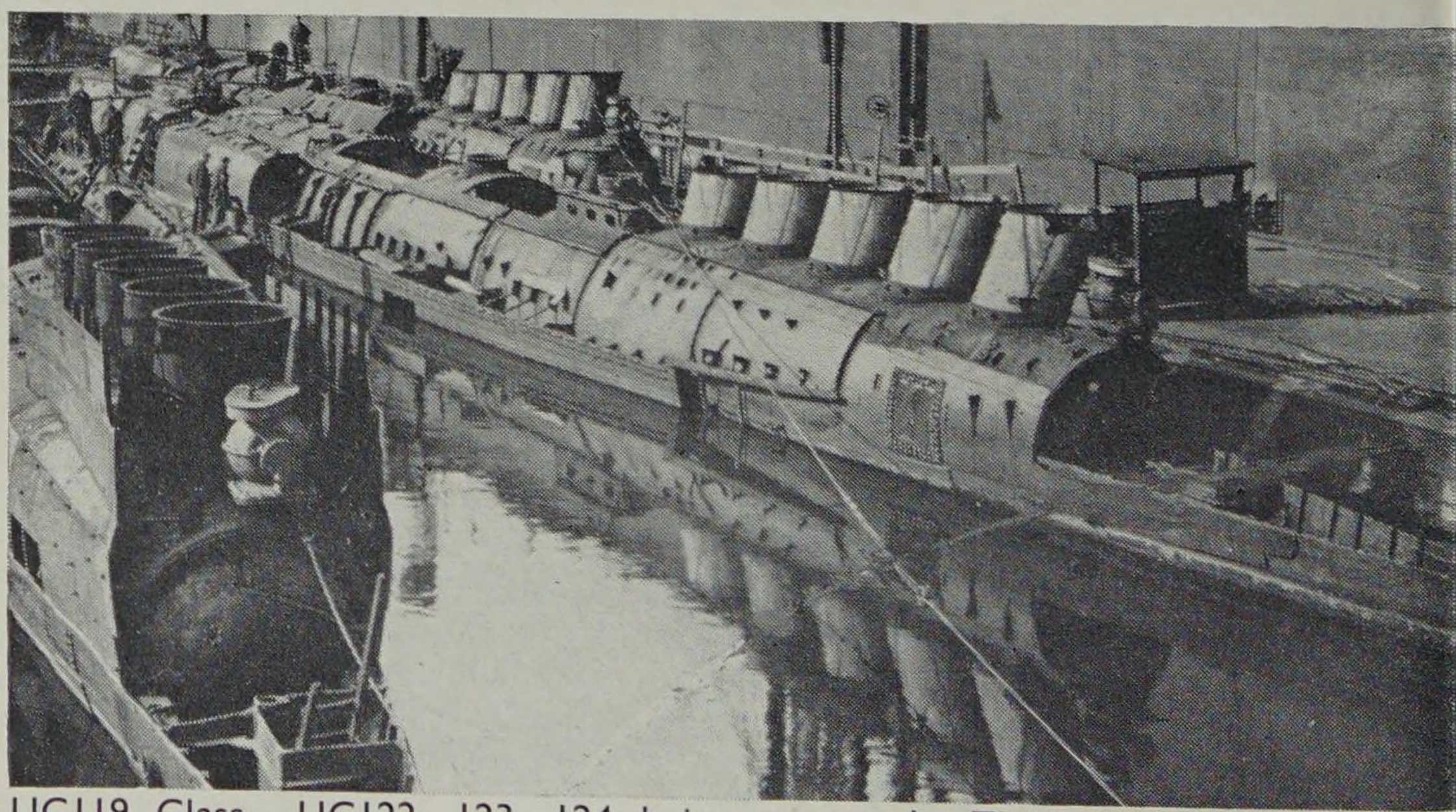
Summary of U-Boats

Name of Type	*Tons (surface)*	*Ship Numbers (Projected numbers in brackets)*
Karp	200-420	U1-4
Desiderata	500-560	U5-18
(ex-Norwegian)	270	UA
UA (Cruisers)	1500-2200	U137-159 (173-200)
Mittel-U	560-900	U18-70*, 81-116, 127-138, 158-172 (201-276)
UB (Coastal)		
UBI	128	UB1-17
UBII	270	UB18-47
UBIII	510-550	UB48-155 (-249)
UC (Small minelayers)		
UCI	170	UC1-15
UCII	400-430	UC16-79
UCIII	475-510	UC80-124 (-192)
(UD Projected cruiser)	4000	
UE (Ocean minelayers)	750-1160	U71-80, 117-126
(UF Projected Flanders Coastal)	360	(UF1-92)

Alternative terms:

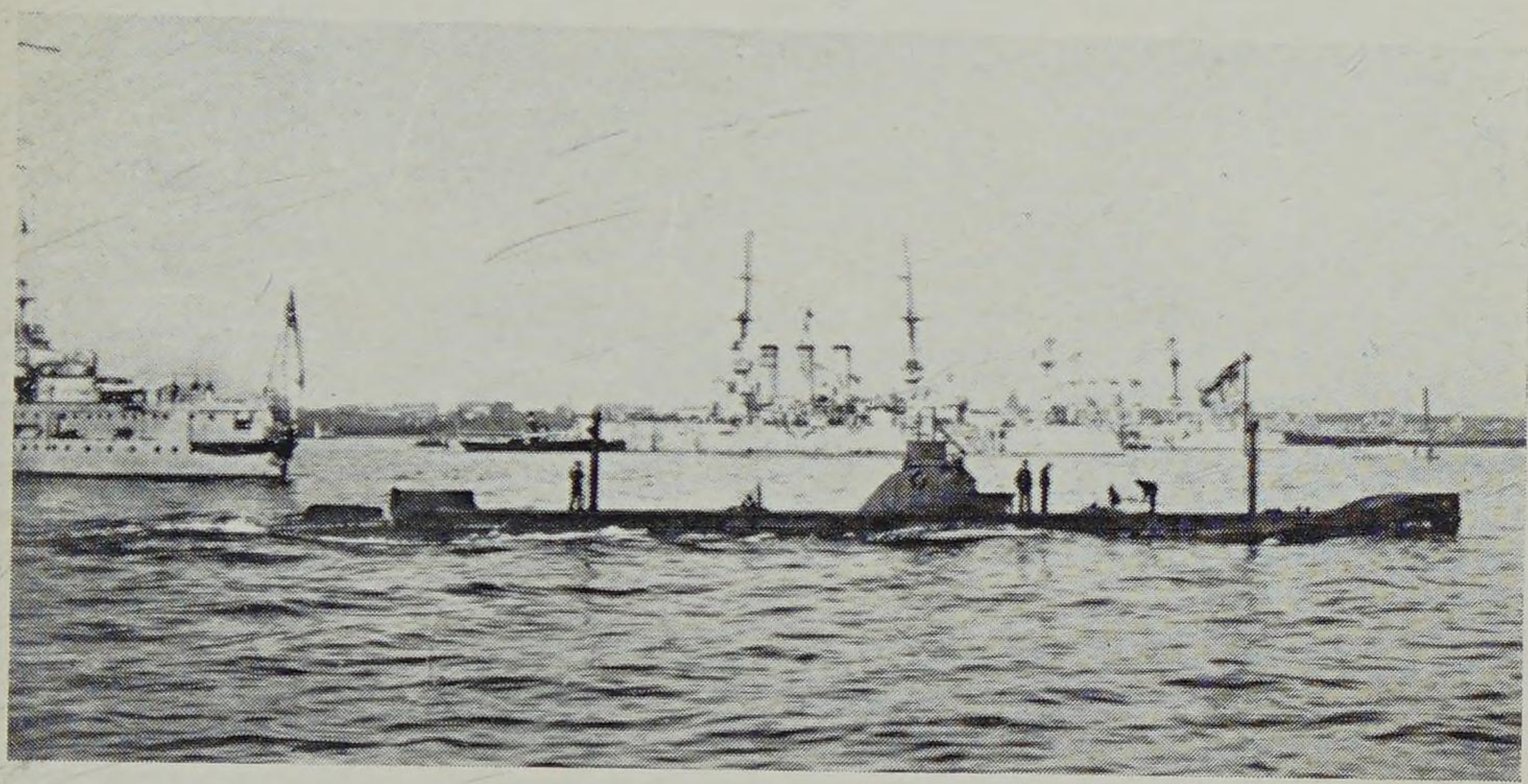
UK, UKr, U-Kreuzer for UA type.
Deutschland or Handels U-boote for ex-mercantile cruisers U151-7.
Helder-boote or Hero-boote for other cruisers U139-150.

* There was no U42 (see note on page 48).

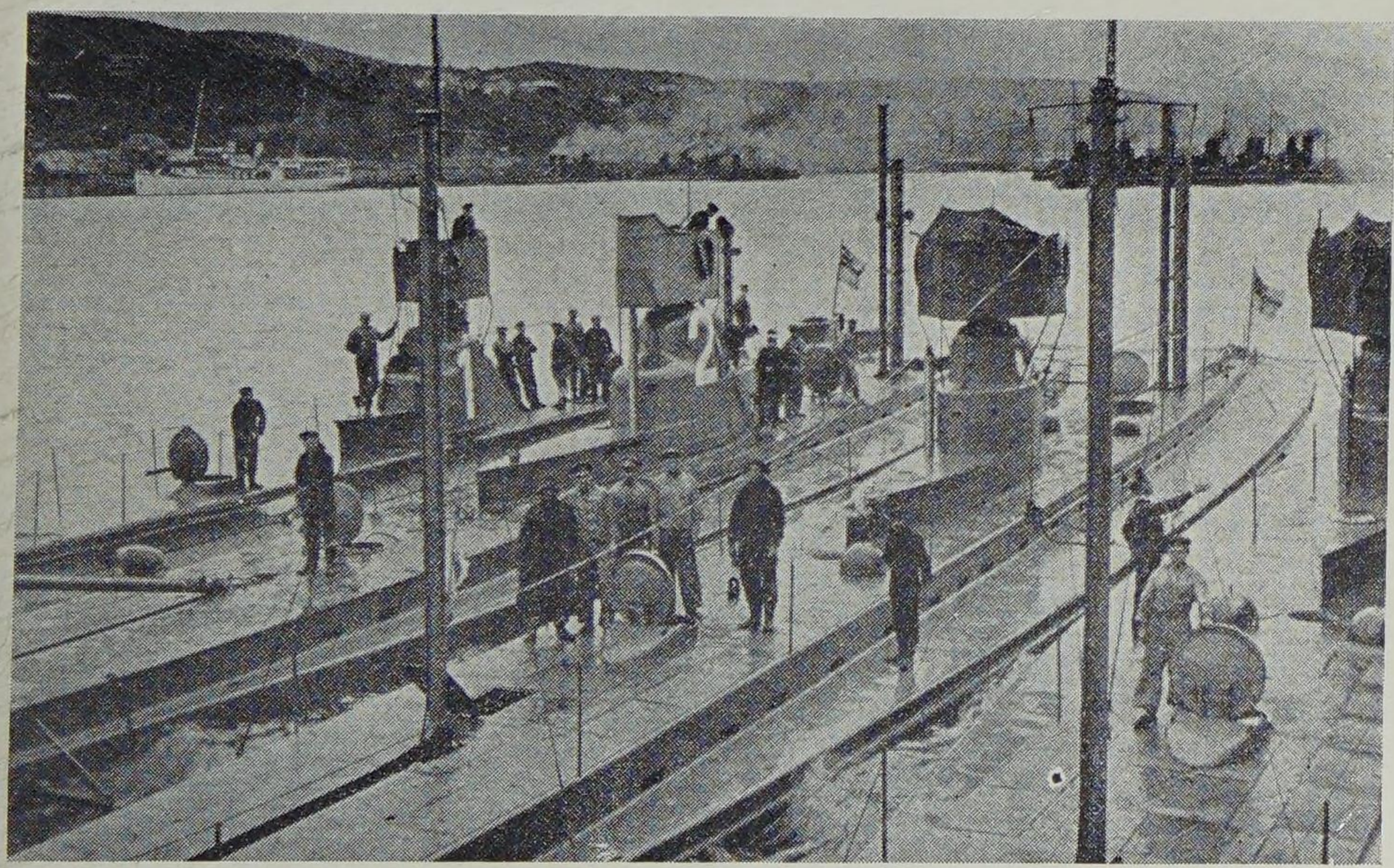


UC119 Class. UC122, 123, 124 being scrapped. The minelaying tubes are exposed.

[N. M M. Greenwich



The first U-boat, U1. [N.M.M. Greenwich



Early German U-boats U1, U2, and U3. [N.M.M. Greenwich

GERMAN SUBMARINE CLASSES

U1

Length: 139 ft. *Beam:* 12¼ ft. *Displacement:* 238/283 tons.
Heavy oil engines. 2 screws. 400/400 h.p. 10.7/7 knots.
Torpedo tube: 1—17.7 in. (bow). *Complement:* 19.

Number	Completed	Builder	
U1	1906	Ger.	1919 Hulk, 1921 Sold for Museum exhibit.

Note: U1-4 were Training ships during the War.

U2

Length: 149 ft. *Beam:* 18 ft. *Displacement:* 341/430 tons.
Heavy oil engines. 2 screws. 600/630 h.p. 13.2/9 knots.
Torpedo tubes: 4—17.7 in. (2 bow, 2 stern). *Complement:* c.20.

Number	Completed	Builder	
U2	1908	Dz.Dy.	1919 Scrapped.

U3 CLASS

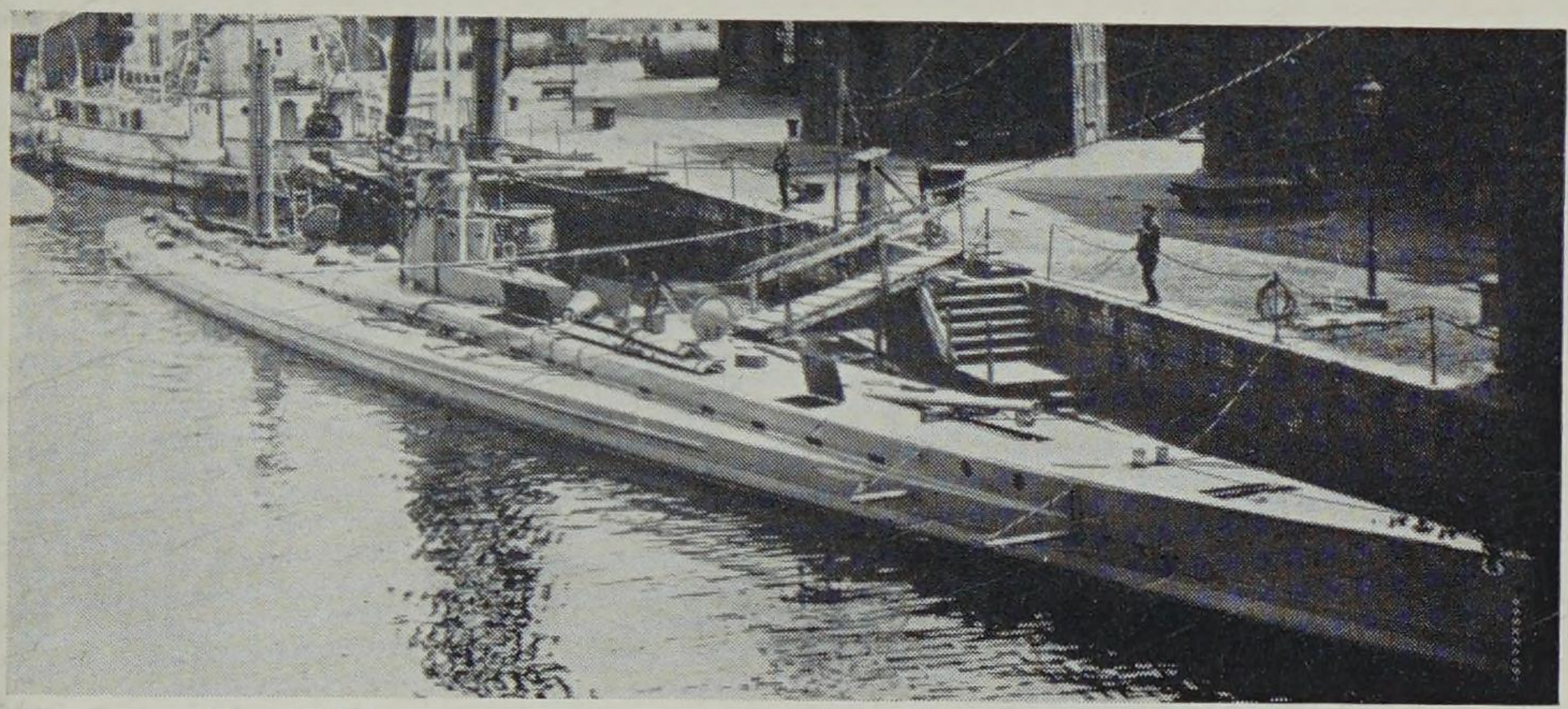
Length: 168¼ ft. *Beam:* 18¼ ft. *Displacement:* 421/510 tons.
Heavy oil engines. 2 screws. 600/1,030 h.p. 11.5/9.5 knots.
Torpedo tubes: 4—17.7 in. (2 bow, 2 stern). *Gun:* 1—2 in. *Complement:* 22.

Number	Completed	Builder	
U3	1909	Dz.Dy.	1918 Sank on way to breakers in U.K.
U4	1909	Dz.Dy.	1919 Scrapped in Germany.

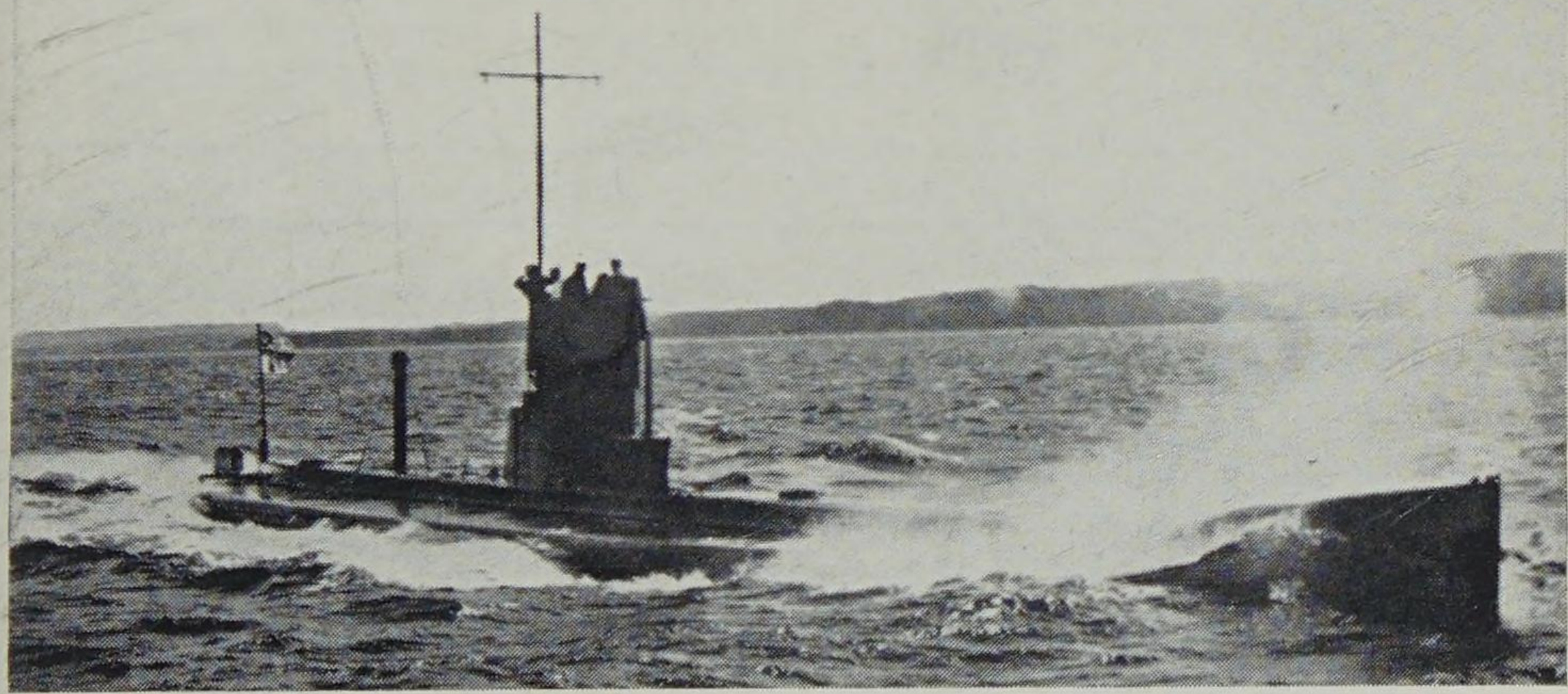
U5 CLASS

Length: 188 ft. *Beam:* 18¼ ft. *Displacement:* 505/636 tons.
Heavy oil engines. 2 screws. 900/1,040 h.p. 13.5/10 knots.
Torpedo tubes: 4—17.7 in. (2 bow, 2 stern). *Gun:* 1—2 in. *Complement:* 28.
(1)

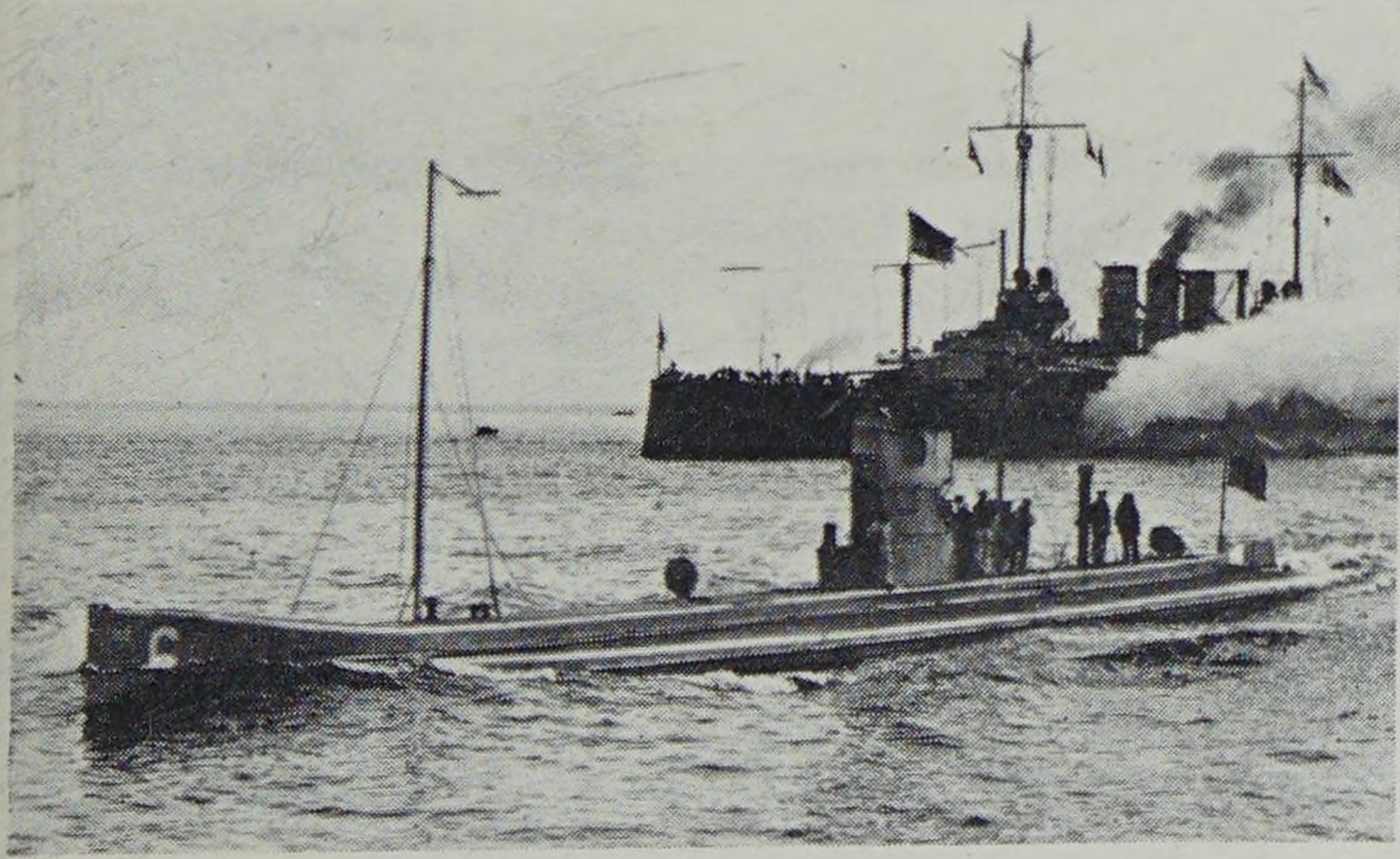
Number	Completed	Builder	
U5	1910	Ger.	1914 Mined off Zeebrugge.
U6	1910	Ger.	1915 Torpedoed by E16 off Stavanger.
U7	1911	Ger.	1915 Torpedoed (in error) by U22 in North Sea.
U8	1911	Ger.	1915 Sunk by destroyers in Dover Straits.



German U-boat U4. [N.M.M. Greenwich



Above: German U-boat U5. [N.M.M. Greenwich



Left: German U-boat U6. Note exhaust from heavy oil engine. [N.M.M. Greenwich

(2) As above but beam: 19¾ ft., 493/611 tons, 1,050/1,160 h.p., 14/8 knots.

Number	Completed	Builder	
U9	1910	Dz.Dy.	1915 Surface ML, 1916 Training ship, 1919 scrapped.
U10	1911	Dz.Dy.	1916 Mined (?) in the Baltic.
U11	1910	Dz.Dy.	1914 Mined in Dover Straits.
U12	1911	Dz.Dy.	1915 Rammed by H.M.S. *Ariel* off Fife Ness.

U13 CLASS

Length: 190 ft. *Beam:* 19¾ ft. *Displacement:* 516/644 tons.
Heavy oil engines. 2 screws. 1,200/1,160 h.p. 14.8/10.7 knots.
Torpedo tubes: 4—17.7 in. (2 bow, 2 stern). *Gun:* 1—2 in. *Complement:* 28.
(1)

Number	Completed	Builder	
U13	1912	Dz.Dy.	1914 Mined off Heligoland.
U14	1912	Dz.Dy.	1915 Rammed by trawler off Peterhead.
U15	1912	Dz.Dy.	1914 Rammed by H.M.S. *Birmingham* off Fair Isle.

(2) As above but 489/627 tons and 15.5 knots surface speed.

U16	1911	Ger.	1919 Foundered en route to surrender.

U17 CLASS

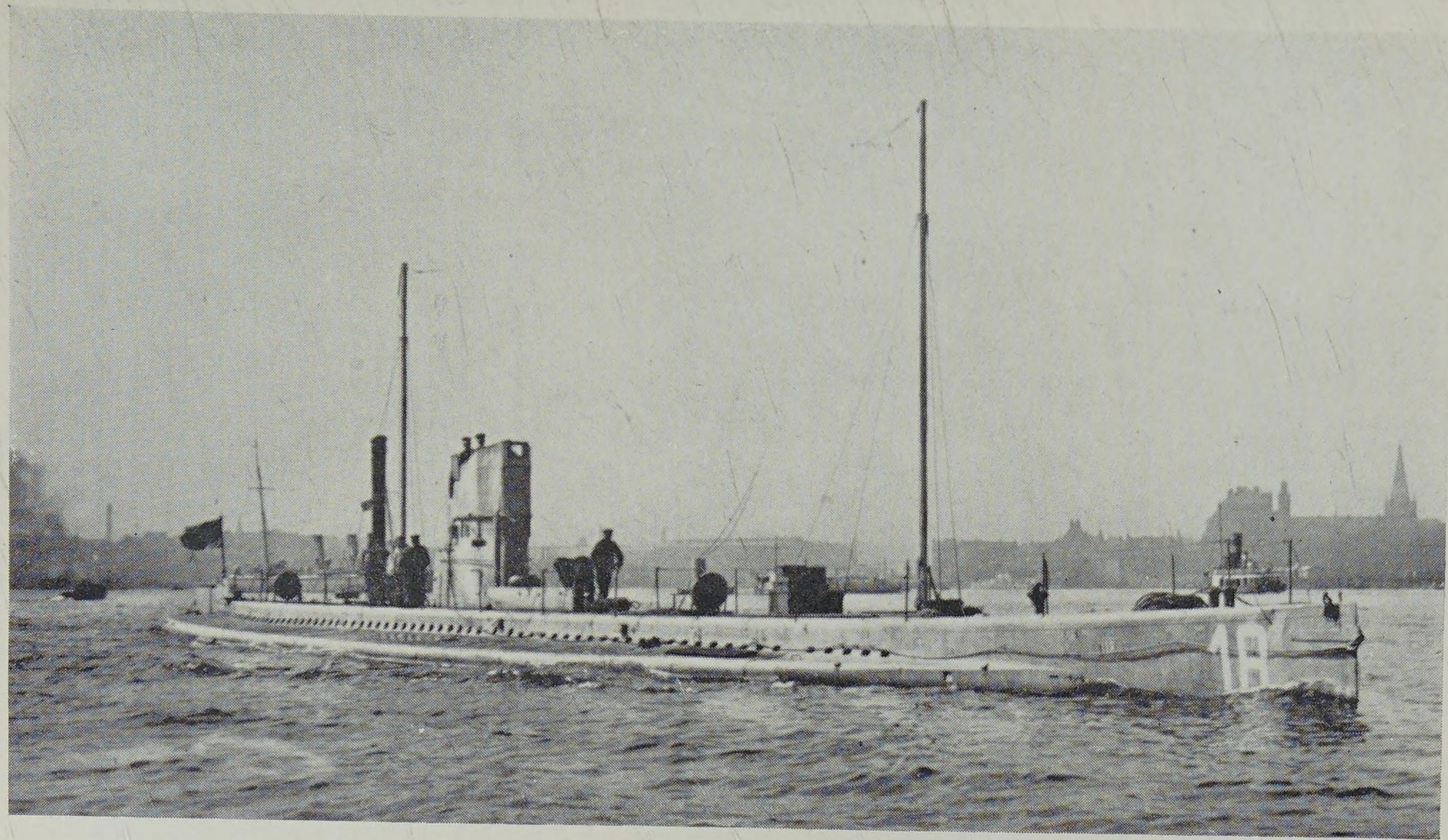
Length: 204½ ft. *Beam:* 19¾ ft. *Displacement:* 564/691 tons.
Heavy oil engines. 2 screws. 1,400/1,120 h.p. 15/9.5 knots.
Torpedo tubes: 4—17.7 in. (2 bow, 2 stern). *Gun:* 1—2 in. or nil.
Complement: 28.

Number	Completed	Builder	
U17	1912	Dz.Dy.	1916 Training ship, 1919 Scrapped at Kiel.
U18	1912	Dz.Dy.	1914 Rammed by trawler off Scapa Flow.

U19 CLASS

Length: 210½ ft. *Beam:* 20 ft. *Displacement:* 650/837 tons.
Diesel engines. 2 screws. 1,700/1,200 h.p. 15.5/9.5 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Gun:* 1—3.4 in. or 4.1 in.
Complement: 39.

Number	Completed	Builder	
U19	1913	Dz.Dy.	1918 To U.K., 1919-20 scrapped.
U20	1913	Dz.Dy.	1916 Stranded in Denmark and blown up
U21	1913	Dz.Dy.	1919 Foundered en route to surrender.
U22	1913	Dz.Dy.	1918 To U.K., 1919-20 scrapped.



German U-boat U18.

[N.M.M. Greenwich

U23 CLASS

Length: 212⅓ ft. *Bwam:* 20¾ ft. *Displacement:* 669/864 tons.
Diesel engines. 2 screws. 1,800/1,200 h.p. 16.75/10.3 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Guns:* 1 or 2—3.4 in.
Complement: 39.

Number	Completed	Builder	
U23	1913	Ger.	1915 Torpedoed by C27 off Fair Isle.
U24	1913	Ger.	1918 To U.K., 1922 scrapped.
U25	1914	Ger.	1919 To France, 1921-2 scrapped.
U26	1914	Ger.	1915 Mined (?) in the Baltic.

U24, 25 were training ships in the latter part of the War.

U27 CLASS

Length: 212⅓ ft. *Beam:* 20¾ ft. *Displacement:* 675/867 tons.
Diesel engines. 2 screws. 2,000/1,200 h.p. 16.7/9.8 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Guns:* 2—3.4 in. or 1—4.1 in.
Complement: 39.

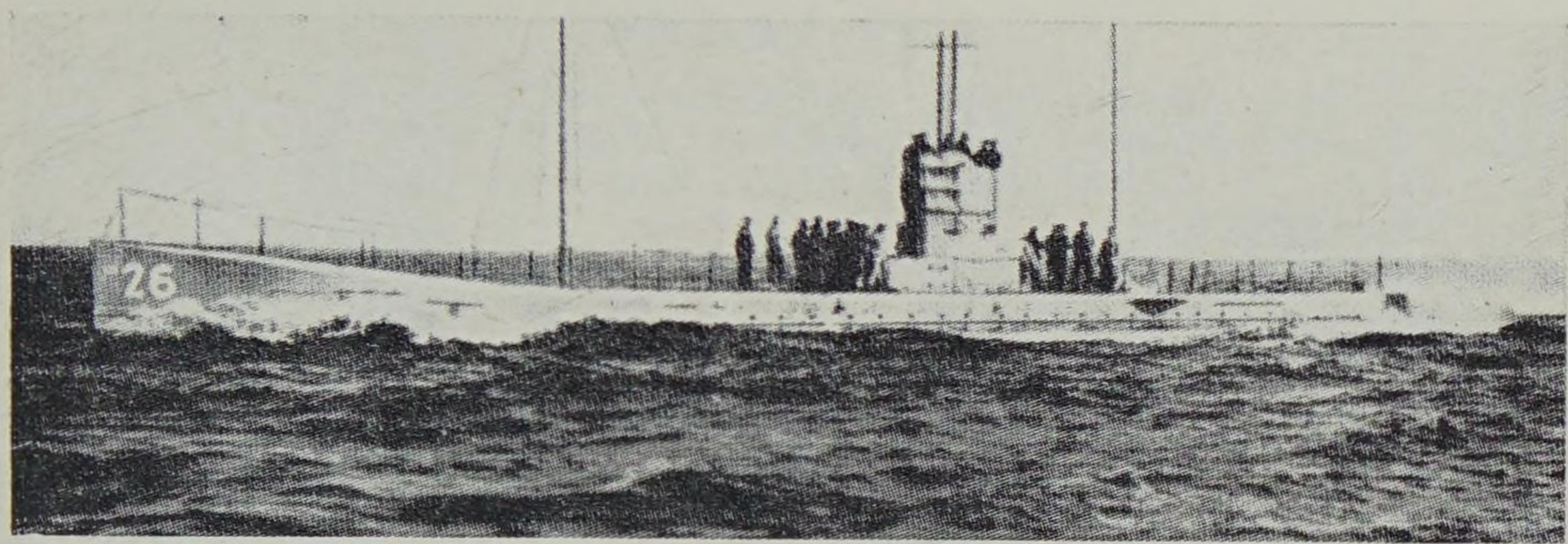
Number	Completed	Builder	
U27	1914	Dz.Dy.	1915 Sunk by Q-ship off Scilly Is.
U28	1914	Dz.Dy.	1917 Destroyed sinking munition ship in the White Sea.
U29	1914	Dz.Dy.	1915 Rammed by H.M.S. *Dreadnought* off Moray Firth.
U30	1914	Dz.Dy.	1918 To U.K., 1919-20 scrapped.

U31 CLASS

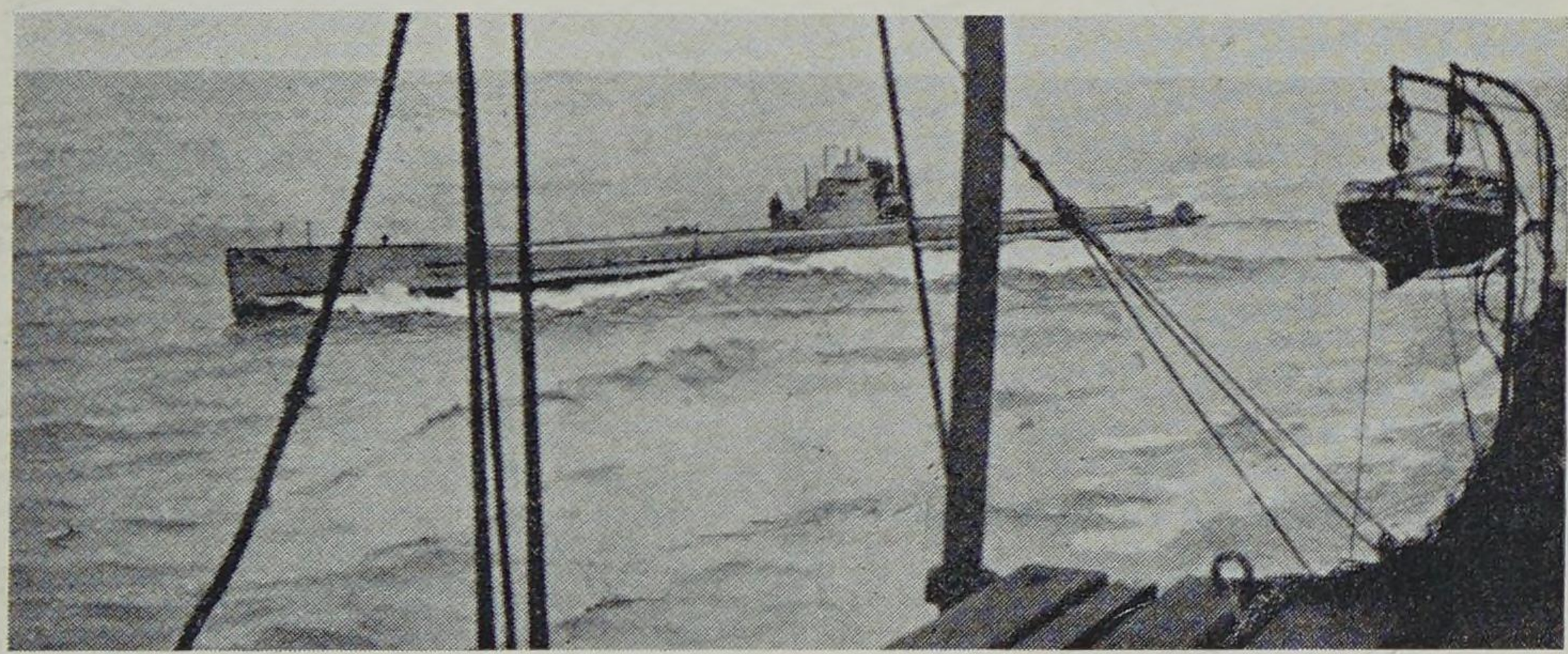
Length: 212⅓ ft. *Beam:* 20¾ ft. *Displacement:* 685/844-878 tons.
Diesel engines. 2 screws. 1,850/1,200 h.p. 16.4/9.7 knots.
Torpedo tubes: 4—19.7 (2 bow, 2 stern). *Guns:* 1 or 2—3.4 in. or 1—4.1 in.
Complement: 32-39.

Number	Completed	Builder	
U31	1914	Ger.	1915 Mined (?) in North Sea.
U32	1914	Ger.	1918 Sunk by H.M.S. *Wallflower* in Mediterranean.
U33	1914	Ger.	1919 To U.K., 1919-20 scrapped.
U34	1914	Ger.	1918 Sunk by Q-ship off Gibraltar.
U35	1914	Ger.	1918 To U.K., 1919-20 scrapped.
U36	1914	Ger.	1915 Sunk by Q-ship off the Hebrides.
U37	1914	Ger.	1915 Mined (?) in English Channel.
U38	1914	Ger.	1919 To France, 1921 scrapped.
U39	1915	Ger.	1919 To France, 1923 scrapped.
U40	1915	Ger.	1915 Torpedoed by C24 off Aberdeen.
U41	1915	Ger.	1915 Sunk by Q-ship off Scilly Is.

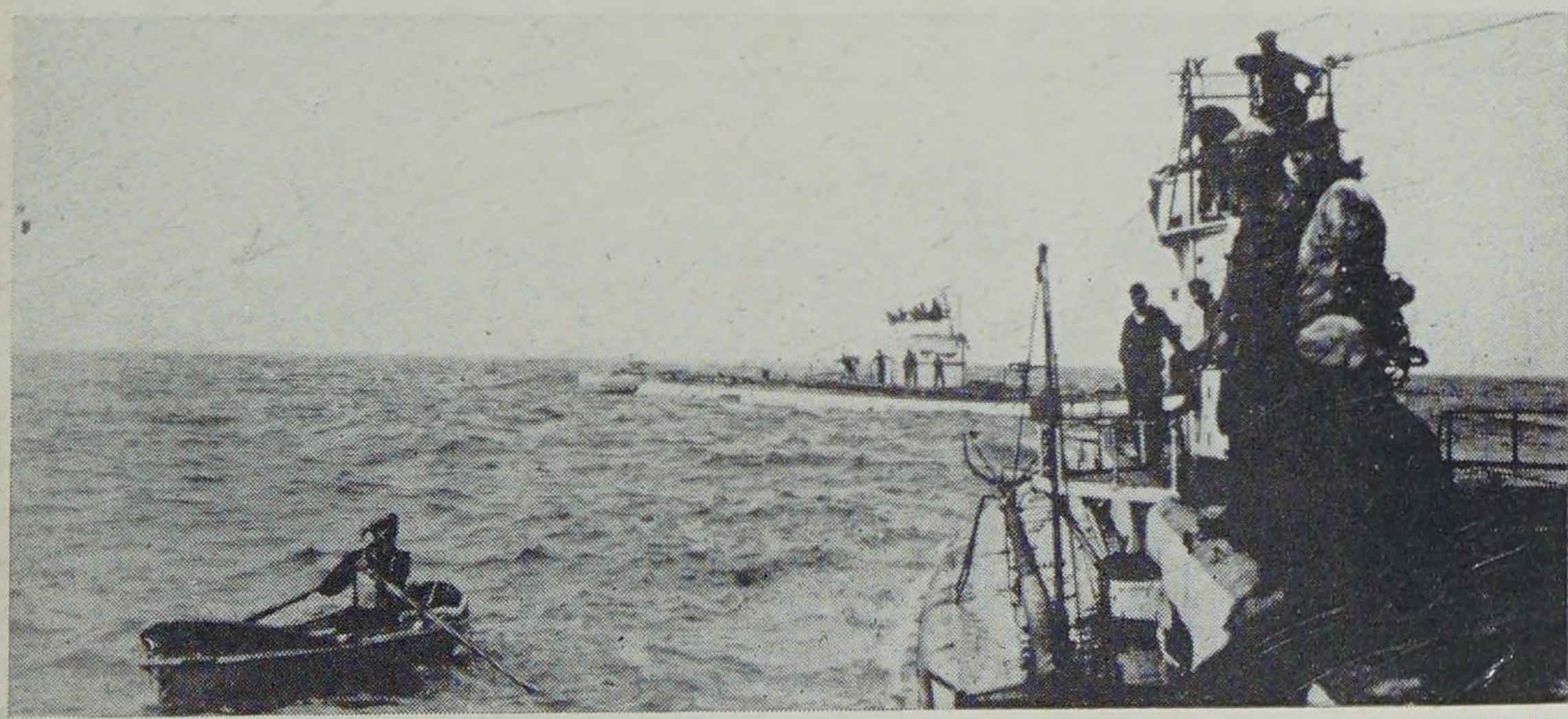
There was no U42. The number was allotted to a vessel ordered from Italy, which was retained as the *Balilla*, sunk in 1916 by an Austrian torpedo boat.



German U-boat U26.



German U-boat U29, attacking a merchant ship. [*Daily Mail*



German U31 Class U-boats. [*I.W.M.*

U43 CLASS

Length: 213¼ ft. *Beam:* 20½ ft. *Displacement:* 725/940 tons.
Diesel engines. 2 screws. 2,000/1,200 h.p. 15.2/9.5 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Guns:* 1 or 2—3.4 in. or 1—4.1 in.
Complement: 36-39.

Number	Completed	Builder	
U43	1915	Dz.Dy.	1919 To U.K., 1922 scrapped.
U44 (ML)	1915	Dz.Dy.	1917 Rammed by H.M.S. *Oracle* in North Sea.
U45	1915	Dz.Dy.	1917 Torpedoed by D7 off N. Ireland.
U46	1915	Dz.Dy.	1918 To Japan (as O2), 1922 scrapped.
U47	1916	Dz.Dy.	1918 Blown up at Pola on evacuation.
U48	1916	Dz.Dy.	1917 Stranded on the Goodwins and destroyed.
U49	1916	Dz.Dy.	1917 Sunk by S.S. *British Transport* in the Atlantic.
U50	1916	Dz.Dy.	1917 Mined (?) in North Sea.

U51 CLASS

Length: 214 ft. *Beam:* 21 ft. *Displacement:* 712/902 tons.
Diesel engines. 2 screws. 2,400/1,200 h.p. 17/9.25 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Guns:* 1—4.1 in., 1—3.4 in.
Complement: 36-39.

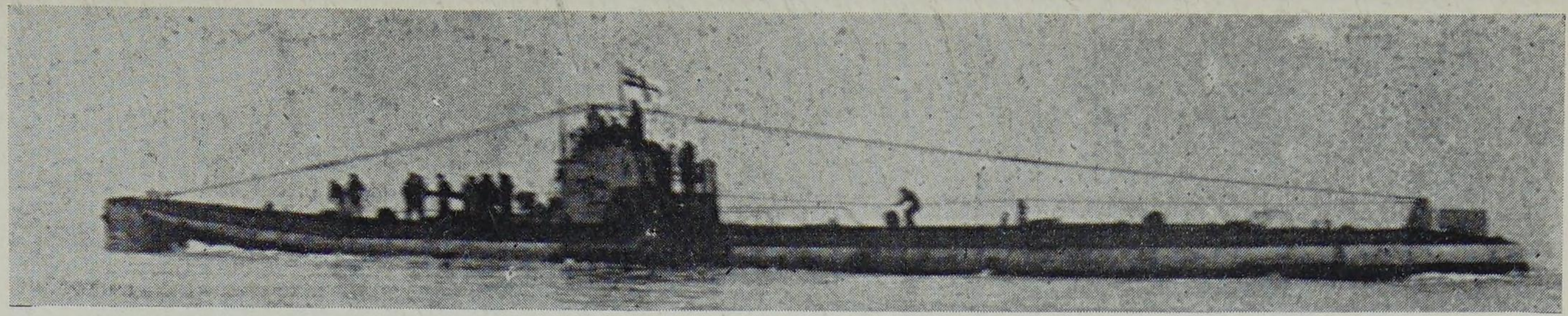
Number	Completed	Builder	
U51	1916	Ger.	1916 Torpedoed by H5 in the Ems Estuary.
U52	1916	Ger.	1918 To U.K., 1922 scrapped.
U53	1916	Ger.	1918 to U.K., 1922 scrapped.
U54	1916	Ger.	1918 to Italy, 1919 scrapped.
U55	1916	Ger.	1918 To Japan (as O3), 1922 scrapped.
U56	1916	Ger.	1916 Sunk by Russian ships off Lapland.

U57 CLASS

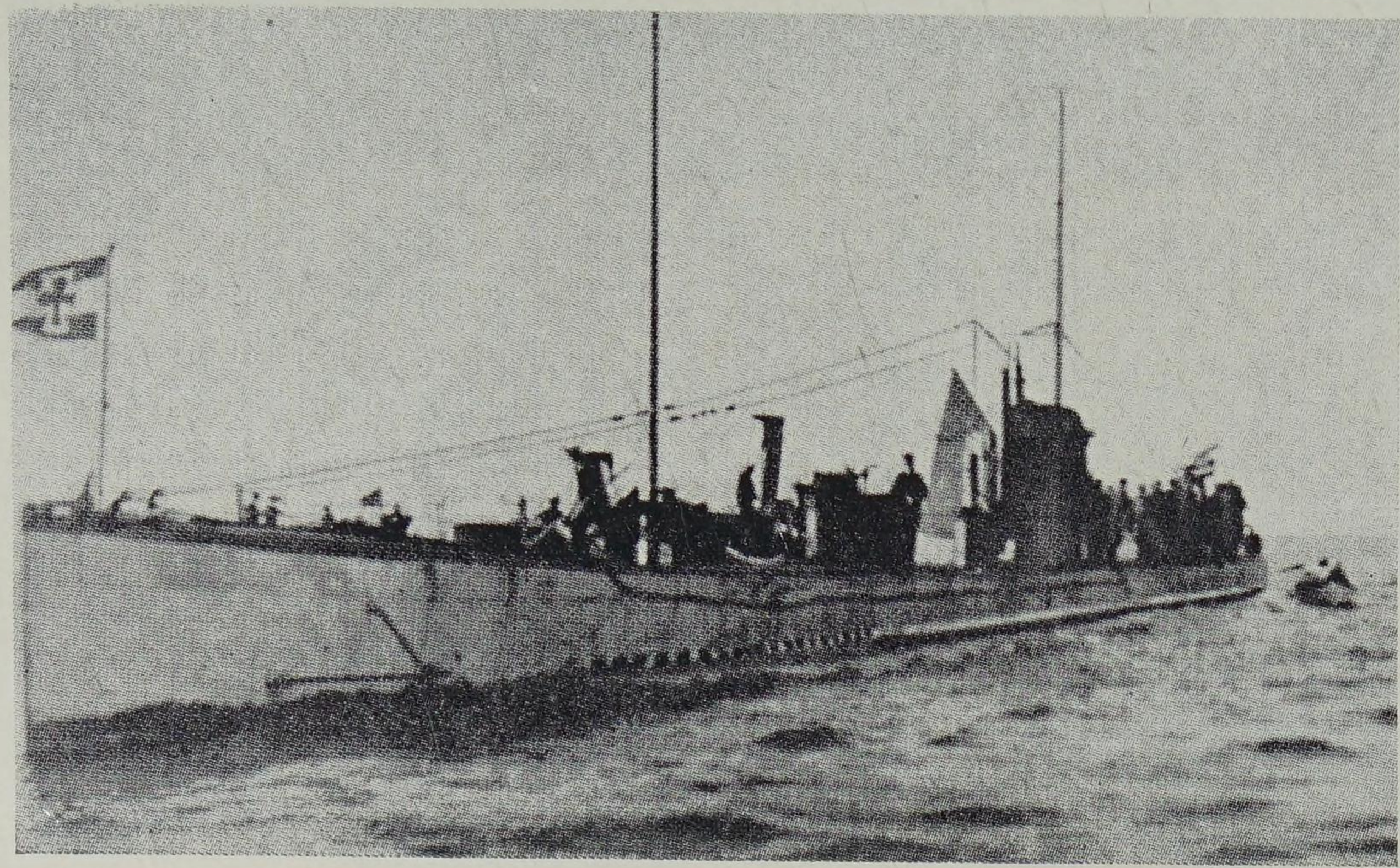
Length: 219¾ ft. *Beam:* 20¾ ft. *Displacement:* 786/954 tons.
Diesel engines. 2 screws. 1.800/1,200 h.p. 14.7/8.4 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Guns:* 1—4.1 in. or 3.4 in.
Complement: 39.

(1)

Number	Completed	Builder	
U57	1916	Wes.	1918 To France, 1921 scrapped.
U58	1916	Wes.	1917 Sunk by U.S. destroyers off S. Ireland.
U59	1916	Wes.	1917 Mined off Heligoland.



Above: German U-boat U43 on way to surrender. [*I.W.M.*



Left: German U-boat U53.

(2) As above but 768/956 tons, 2,400 h.p., 16.5 knots (surface).

Number	Completed	Builder	
U60	1916	Wes.	1918 To U.K., 1921 stranded on way to breakers.
U61	1916	Wes.	1918 Sunk by PC51 in St. George's Channel.
U62	1916	Wes.	1918 To U.K., 1919-20 scrapped.

U63 CLASS

Length: 224¼ ft. *Beam:* 20⅔ ft. *Displacement:* 810/927 tons.
Diesel engines. 2 screws. 2,200/1,200 h.p. 16.5/9 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Gun:* 1—4.1 in. *Complement:* 39.

Number	Completed	Builder	
U63	1916	Ger.	1919 To U.K., 1920 scrapped.
U64	1916	Ger.	1918 Sunk by convoy escorts in the Med.
U65	1916	Ger.	1919 Blown up at Pola on evacuation.

U66 CLASS (ex AUSTRIAN)

Length: 228 ft. *Beam:* 20⅔ ft. *Displacement:* 791/933 tons.
Diesel engines. 2 screws. 2,300/1,240 h.p. 16.5/10 knots.
Torpedo tubes: 5—17.7 in. (4 bow, 1 stern). *Gun:* 1—3.4 in or 4.1 in.
Complement: 39.

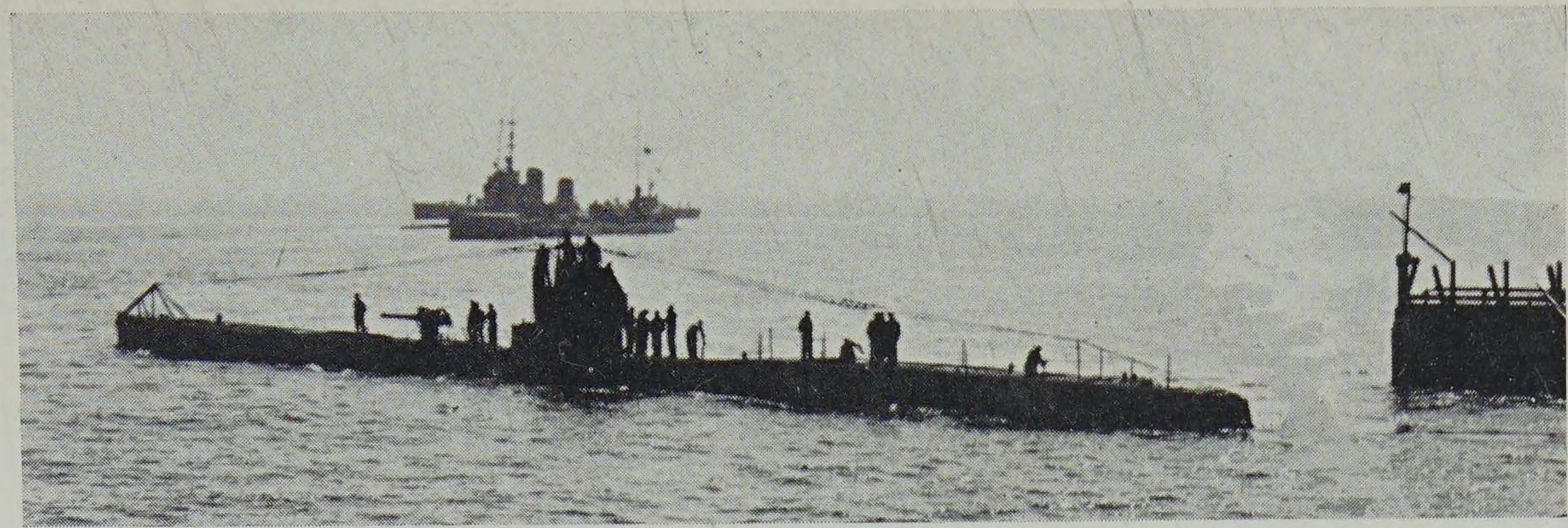
Number	Completed	Builder	
U66	1915	Ger.	1917 Mined in North Sea.
U67	1915	Ger.	1918 To U.K., 1920 sold, 1921 scrapped.
U68	1915	Ger.	1916 Sunk by Q-ship off S.W. Ireland.
U69	1915	Ger.	1917 Sunk by H.M.S. *Patriot* in North Sea.
U70	1915	Ger.	1918 To U.K., 1919-20 scrapped.

These vessels were ordered by Austria.

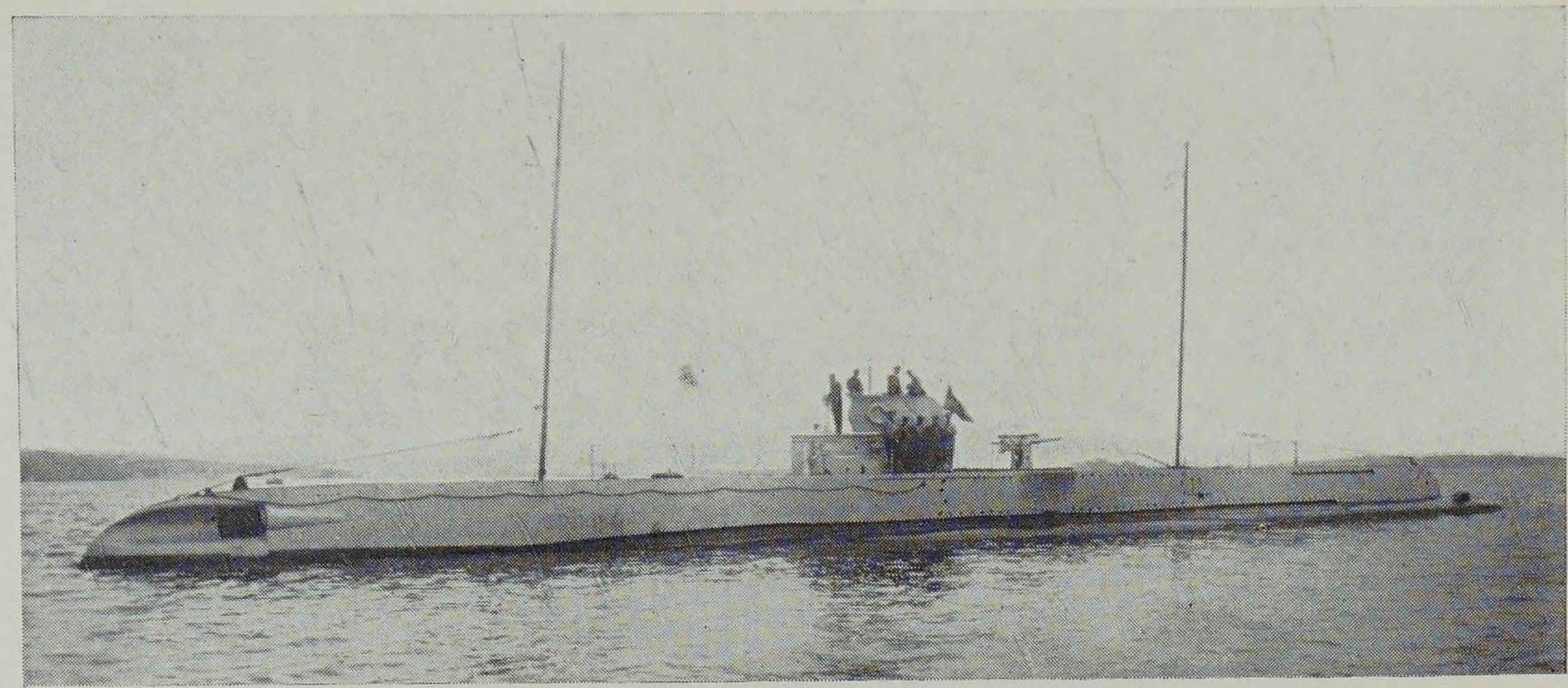
U71 CLASS (UE-I class Ocean Minelayers)

Length: 186⅓ ft. *Beam:* 19⅓ ft. *Displacement:* 745-755/830 tons.
Diesel engines. 2 screws. 800-900/800-900 h.p. 10/7.9 knots.
Torpedo tubes: 2—19.7 in. (side on deck). *Mine tubes:* 2. *Mines:* 32.
Gun: 1—3.4 in. or 4.1 in. *Complement:* 32-39.

Number	Completed	Builder	
U71	1915	Vul.(H).	1918 To France, 1921 scrapped.
U72	1916	Vul.(H).	1918 Blown up at Cattaro on evacuation.
U73	1915	Dz.Dy.	1918 Blown up at Pola on evacuation.
U74	1915	Dz.Dy.	1916 Sunk by four trawlers off Aberdeen.



Left: German U-boat U70.
[*N.M.M. Greenwich*



Right: German U - boat U80. Note minelaying tubes aft.
[*N.M.M Greenwich*

Number	Completed	Builder	
U75	1916	Vul.(H).	1917 Mined off Terschelling.
U76	1916	Vul.(H).	1917 Sunk by Russian trawlers off N. Norway.
U77	1916	Vul.(H).	1916 ' Missing ' in North Sea.
U78	1916	Vul.(H).	1918 Torpedoed by G2 in North Sea.
U79	1916	Vul.(H).	1918 Became French *Victor Reveille*, 1933 scrapped.
U80	1916	Vul.(H).	1919 To U.K., 1922 scrapped.

All minelayers and nicknamed " The Children of Sorrow ". It is possible that H.M.S. *Hampshire* (with Lord Kitchener on board) was sunk by a mine from one of these ships, whose large minelaying radius was not then known. Mines were therefore not suspected in the area of the disaster.

U81 CLASS

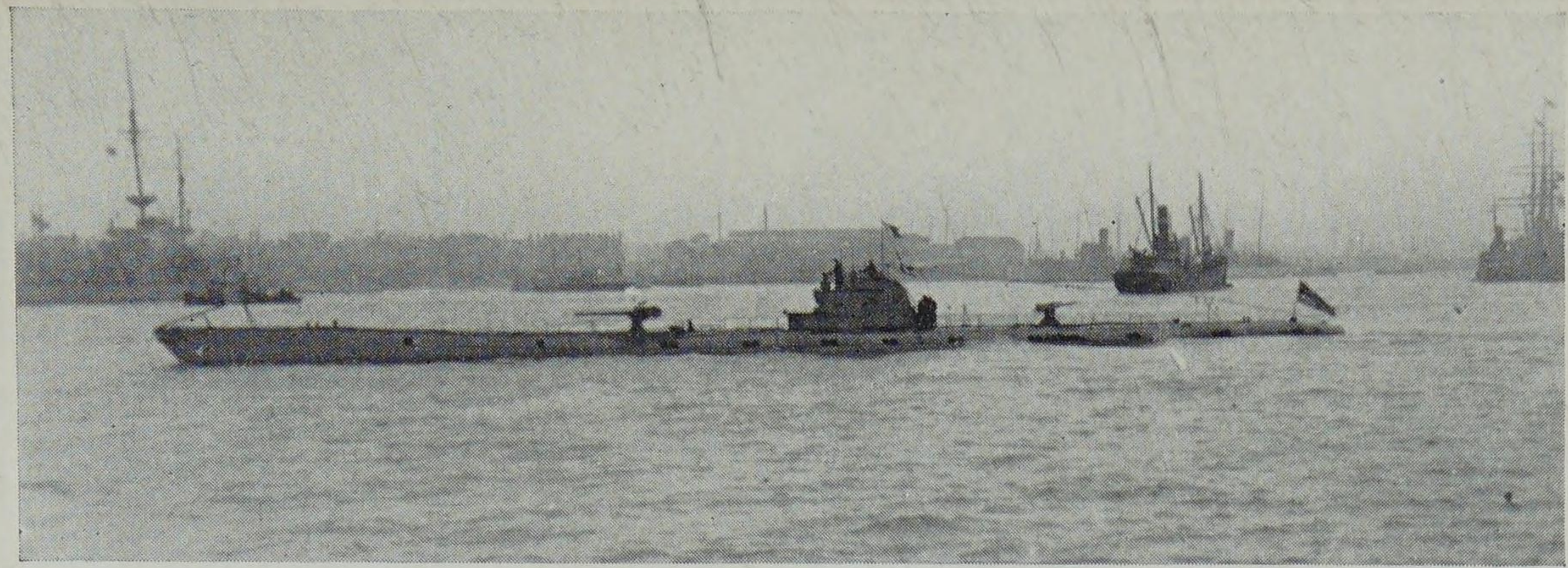
Length: 230 ft. *Beam:* 20⅔ ft. *Displacement:* 808/946 tons.
Diesel engines. 2 screws. 2,400/1,200 h.p. 16.8/9.1 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Guns:* 1—4.1 in., 1—3.4 in.
Complement: 32-39.

Number	Completed	Builder	
U81	1916	Ger.	1917 Torpedoed by E54 off W. Ireland.
U82	1916	Ger.	1919 To U.K., 1920 scrapped.
U83	1916	Ger.	1917 Sunk by Q-ship off S.W. Ireland.
U84	1916	Ger.	1918 Rammed by PC62 in St. George's Channel.
U85	1916	Ger.	1917 Sunk by Q-ship off S. Cornwall.
U86	1916	Ger.	1918 To U.K., 1921 sank on way to breakers.

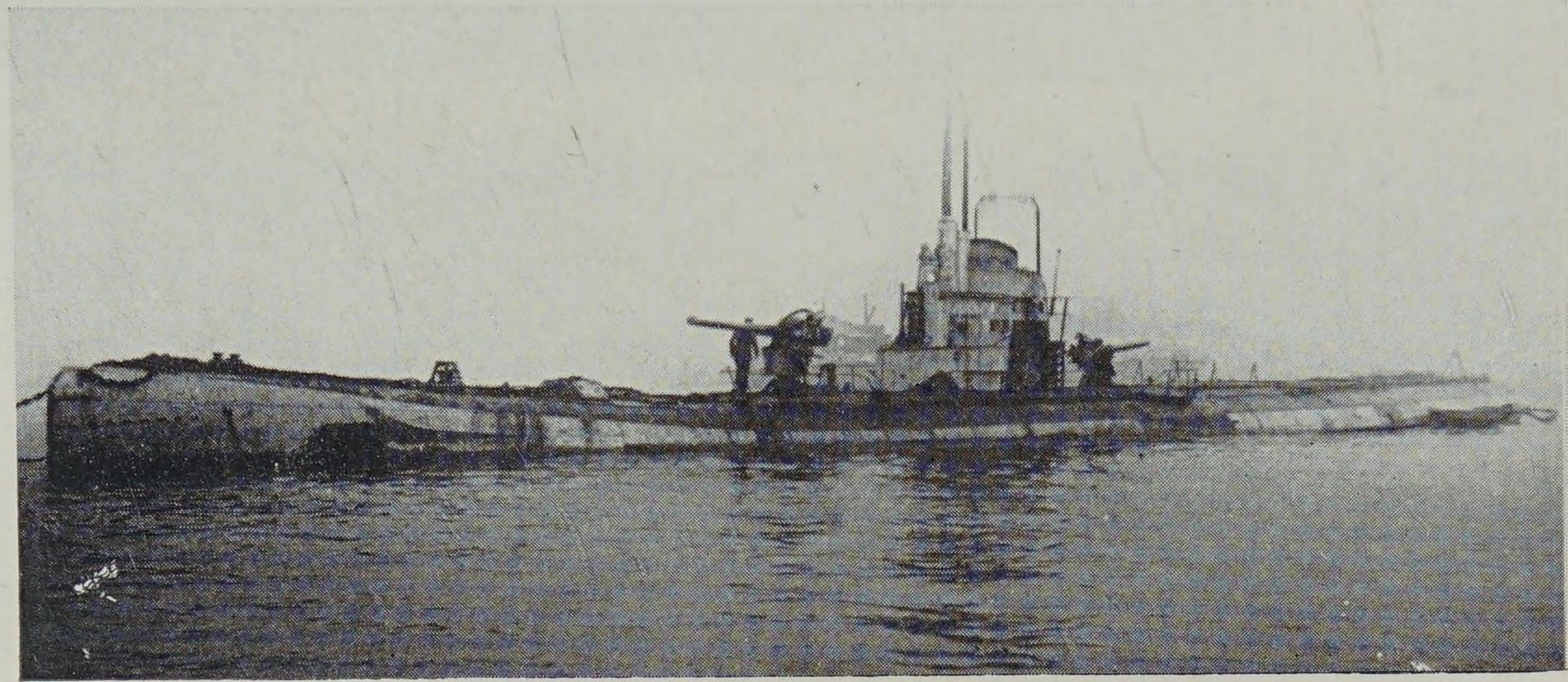
U87 CLASS

Length: 215¾ ft. *Beam:* 20½ ft. *Displacement:* 757/998 tons.
Diesel engines. 2 screws. 2,400/1,200 h.p. 15.6/8.6 knots.
Torpedo tubes: 6—19.7 in. (4 bow, 2 stern). *Guns:* 1 or 2—4.1 in.
Complement: 39.

Number	Completed	Builder	
U87	1917	Dz.Dy.	1917 Rammed by H.M.S. *Buttercup* and PC56 in Irish Sea.
U88	1917	Dz.Dy.	1917 Sunk by Q-ship in Bay of Biscay.
U89	1917	Dz.Dy.	1918 Rammed by H.M.S. *Roxburgh* off N. Ireland.
U90	1917	Dz.Dy.	1918 To U.K., 1919-20 scrapped.
U92	1917	Dz.Dy.	1918 To France, 1921 scrapped.
U92	1917	Dz.Dy.	1918 Mined in North Sea.



Left: German U-boat U86.
[*Cozens*



Right: German U-boat U90.
[*N.P.C.*

U93 CLASS

Length: 235½ ft. *Beam:* 20⅔ ft. *Displacement:* 838/1,000 tons.
Diesel engines. 2 screws. 2,400/1,200 h.p. 16.8/8.6 knots.
Torpedo tubes: 6—19.7 in. (4 bow, 2 stern). *Gun:* 1—3.4 in. or 4.1 in.
Complement: 39.

Number	Completed	Builder	
U93	1917	Ger.	1918 Sunk by S.S. *Braeneil* off The Lizard.
U94	1917	Ger.	1918 To U.K., 1919-20 scrapped.
U95	1917	Ger.	1918 'Missing' in English Channel.
U96	1917	Ger.	1918 To U.K., 1919-20 scrapped.
U97	1917	Ger.	1918 Sank in North Sea en route to surrender.
U98	1917	Ger.	1919 To U.K., 1919-20 scrapped.

U99 CLASS

Length: 221¾ ft. *Beam:* 20¾ ft. *Displacement:* 750/952 tons.
Diesel engines. 2 screws. 2,400/1,200 h.p. 16.5/8.5 knots.
Torpedo tubes: 4—19.7 in. (2 bow, 2 stern). *Gun:* 1—4.1 in. *Complement:* 39.

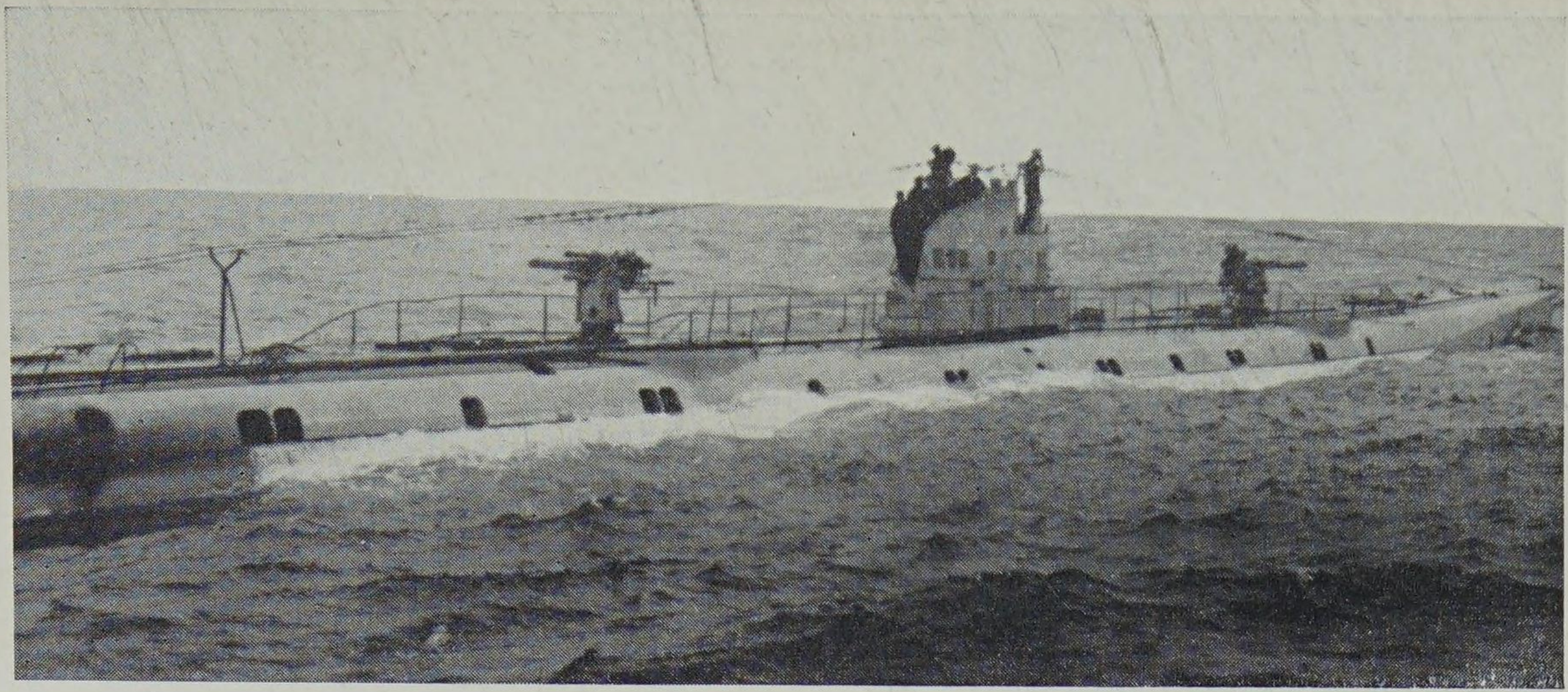
Number	Completed	Builder	
U99	1917	Wes.	1917 Sunk by S.S. *Valeria* in the Atlantic.
U100	1917	Wes.	1918 To U.K., 1922 scrapped.
U101	1917	Wes.	1918 To U.K., 1919 scrapped.
U102	1917	Wes.	1918 Mined in North Sea.
U103	1917	Wes.	1918 Rammed by S.S. *Olympic* in W. English Channel.
U104	1917	Wes.	1918 Sunk by H.M.S. *Jessamine* off S. Ireland.

Said to be the best 'Mittel-U' design.

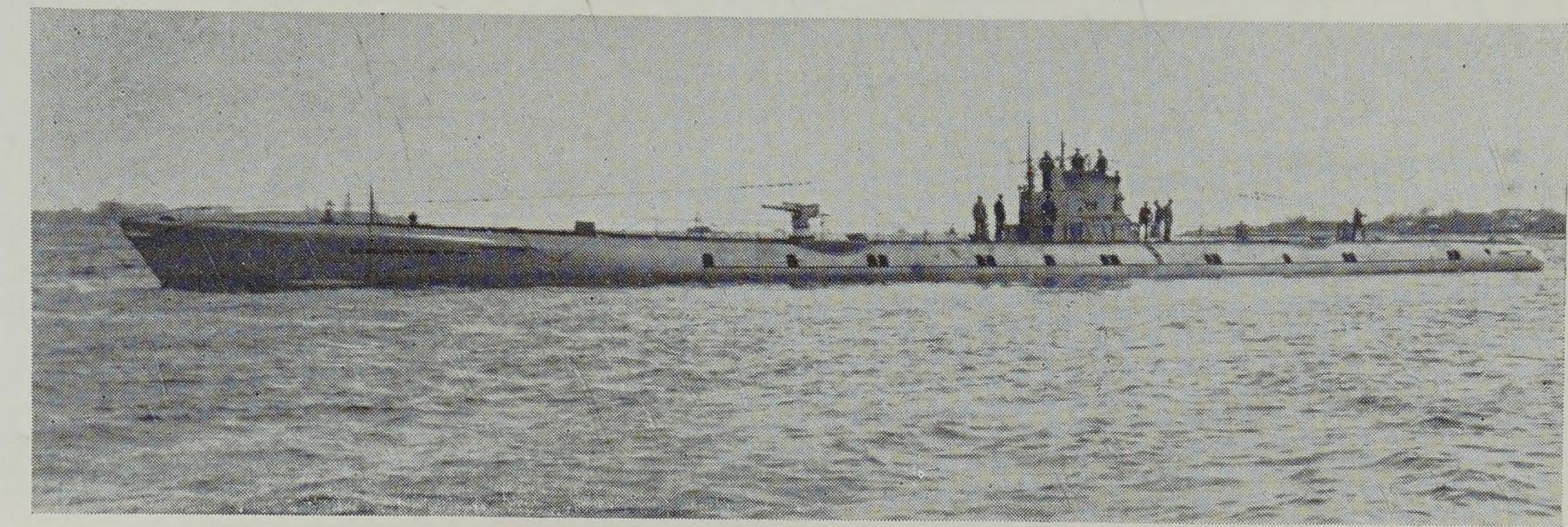
U105 CLASS

Length: 235½ ft. *Beam:* 20¾ ft. *Displacement:* 798/1,000 tons.
Diesel engines. 2 screws. 2,400/1,200 tons. 16.4/8.4 knots.
Torpedo tubes: 6—19.7 in. (4 bow, 2 stern). *Guns:* 1—4.1 in., 1—3.4 in.
Complement: 36-39.

Number	Completed	Builder	
U105	1917	Ger.	1918 Became French *Jean Autric.*
U106	1917	Ger.	1917 Mined in Heligoland Bight.
U107	1917	Ger.	1918 To U.K., 1922 scrapped.
U108	1917	Ger.	1918 Became French *Leon Mignot.*
U109	1917	Ger.	1918 Sunk by drifter *Beryl III* in Dover Straits.
U110	1917	Ger.	1918 Sunk by destroyers off N. Ireland.
U111	1917	Ger.	1918 To U.S.A., later sunk in experiments.
U112	1918	Ger.	1918 To U.K., 1920 Sold, 1922 scrapped.



Left: German U - boat U93 taken in July 1917.
[*N.M.M. Greenwich*



Right: German U-boat U95.
[*N.M.M. Greenwich*

Number	Completed	Builder	
U113	1917	Ger.	1918 To France, 1921 scrapped.
U114	1918	Ger.	1918 To Italy, 1919 scrapped.

U115, 116 (882/1,233 tons), scrapped before completion.

U117 CLASS (UE-II class Ocean Minelayers)

Length: 267½ ft. *Beam:* 24⅓ ft. *Displacement:* 1,164/1,512 tons.
Diesel engines. 2 screws. 2,400/1,240 h.p. 14.75/7.25 knots.
Torpedo tubes: 4—19.7 in. (bow). *Mine tubes:* 2 (stern). *Mines:* 42-48.
Guns: 1 or 2—5.9 in. *Complement:* 40.
(1)

Number	Completed	Builder	
U117	1918	Vul.(H).	1918 To U.S.A., 1921 Sunk in bombing tests
U118	1918	Vul.(H).	1919 To France, 1921 scrapped.
U119	1918	Vul.(H).	1918 Became French *Rene Audry*.
U120	1918	Vul.(H).	1918 To Italy, 1919 scrapped.
U121	1919	Vul.(H).	1919 To France, 1921 sank near Cherbourg.

(2) As above but length: 269 ft., 1,468 tons (submerged).

U122	1918	B.&V.	1918 To U.K., 1921 stranded on way to breakers.
U123	1918	B.&V.	1918 To U.K., 1921 stranded on way to breakers.
U124	1918	B.&V.	1918 To U.K., 1922 scrapped.
U125	1918	B.&V.	1918 To Japan (as O1), 1922 scrapped.
U126	1918	B.&V.	1918 To U.K., 1923 sold and scrapped.

Built for minelaying off the U.S. coast as well as general service these ships were known as the ' Omnibus ' type.
U127-130 (1,221/1,649 tons), scrapped before completion.
U131-134 (1,160/1,527 tons), scrapped before completion.

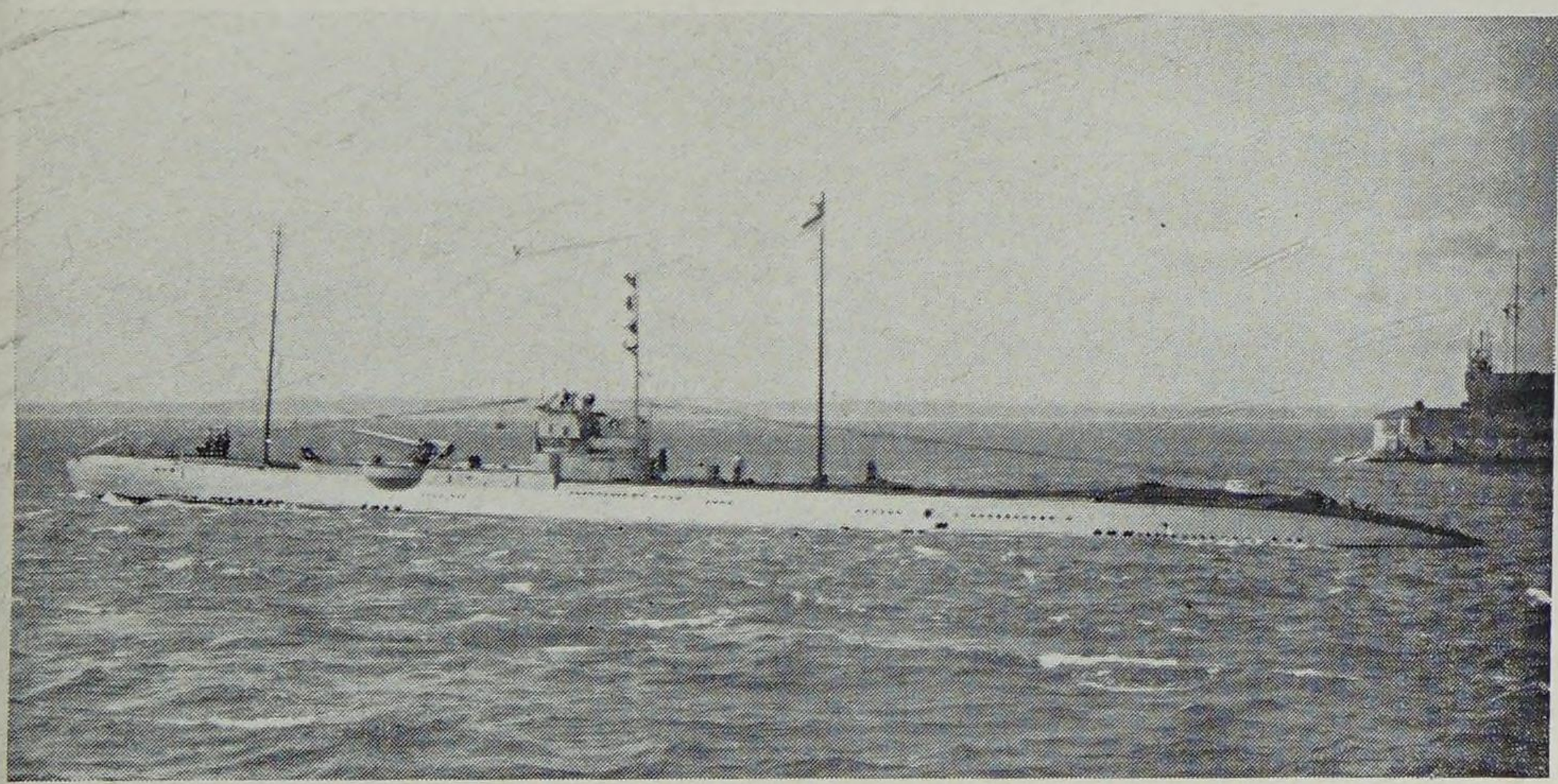
U135 CLASS

Length: 274 ft. *Beam:* 24¾ ft. *Displacement:* 1,175/1,534 tons.
Diesel engines. 2 screws. 3,500/1,690 h.p. 17.5/8 knots.
Torpedo tubes: 4*—19.7 in. (bow). *Gun:* 1—5.9 in. *Complement:* 46.

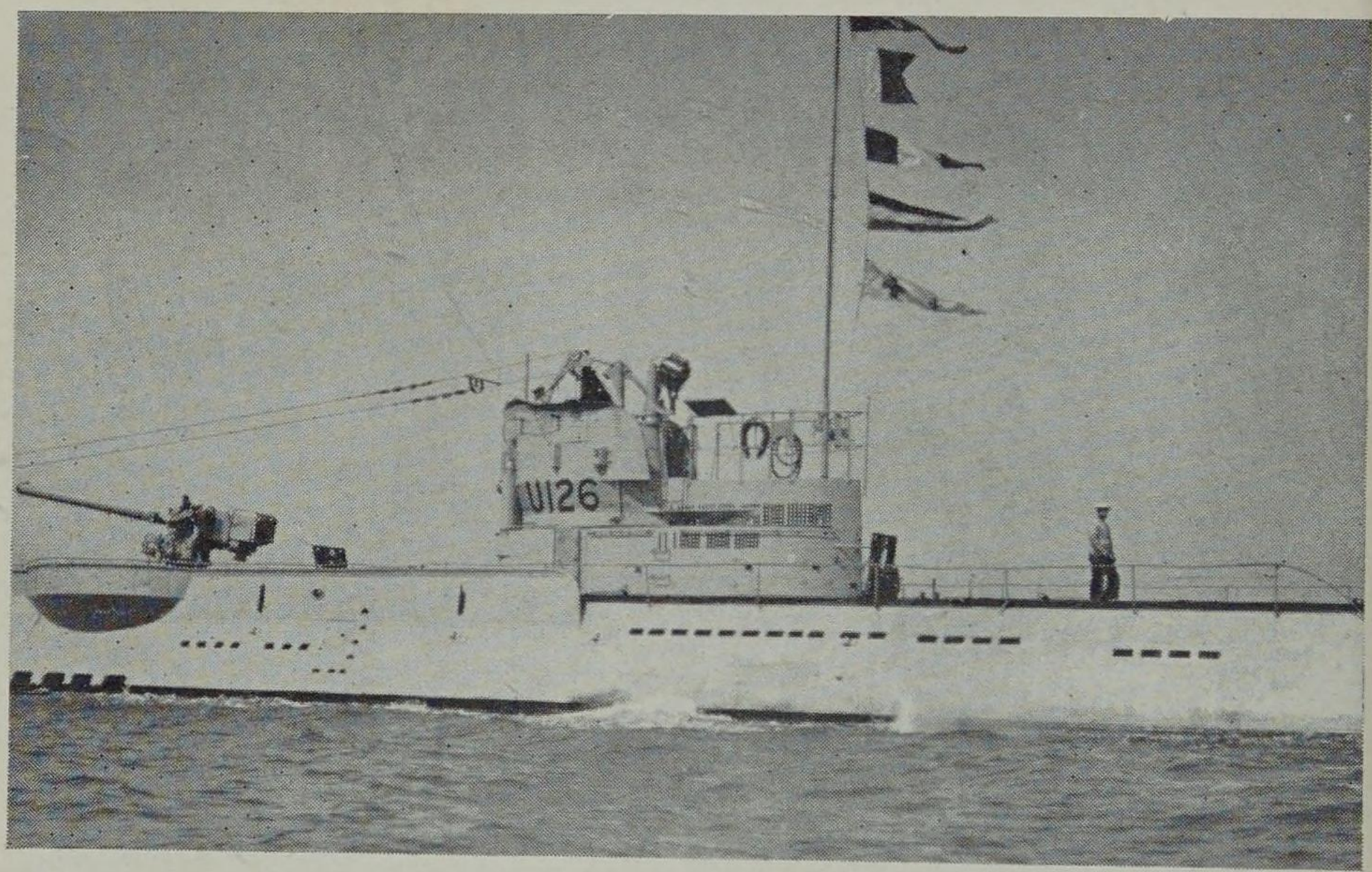
Number	Completed	Builder	
U135	1918	Dz.Dy.	1918 To U.K., 1921 sank on way to breakers.
U136	1918	Dz.Dy.	1919 To France, 1921 scrapped.
U137	—	Dz.Dy.	1919 Scrapped before completion.
U138	—	Dz.Dy.	1919 Scrapped before completion.

* Other sources say 6 T. tubes with two at stern.

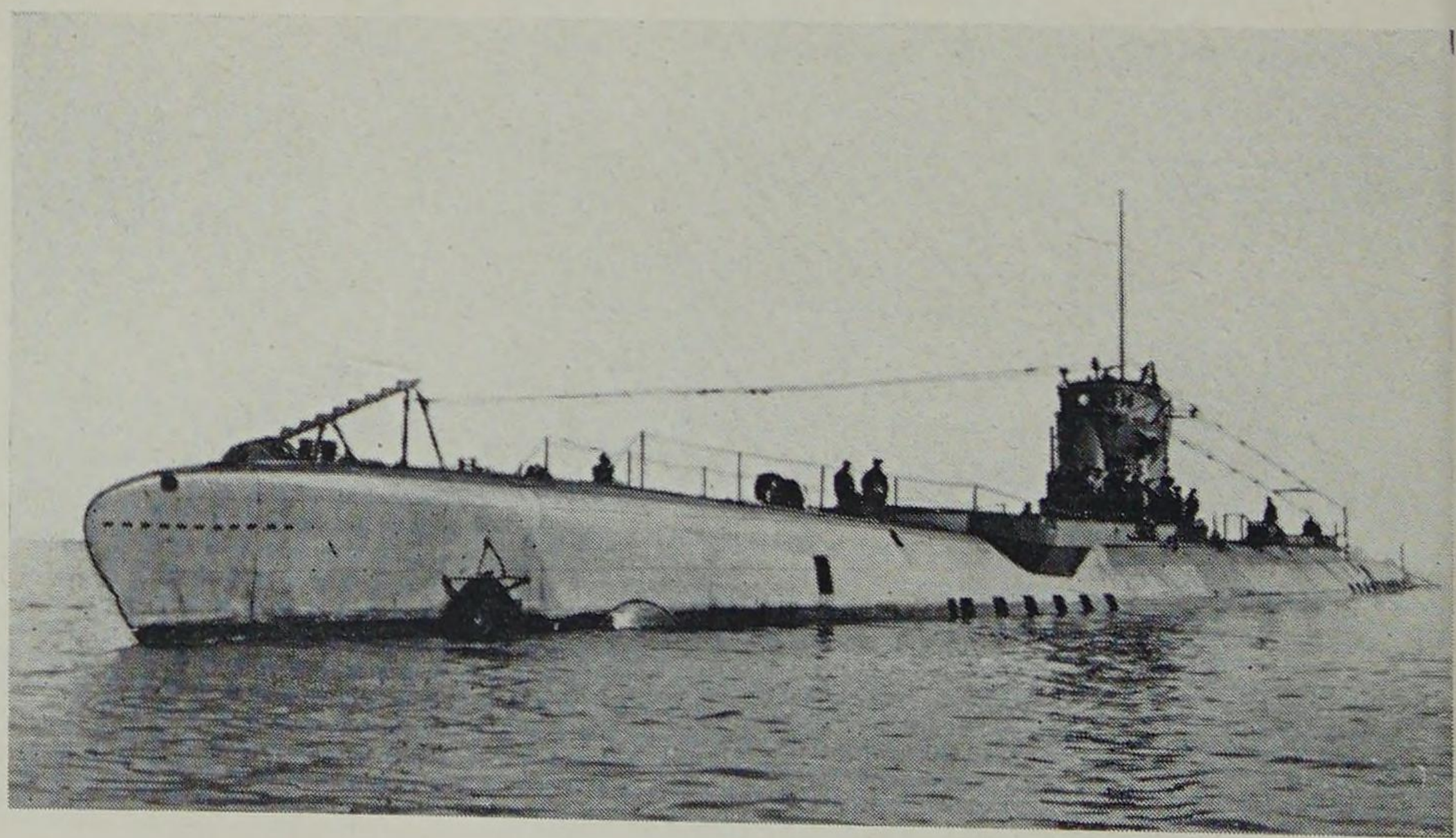
German U-boat U107 at Weymouth after the war. [Seward



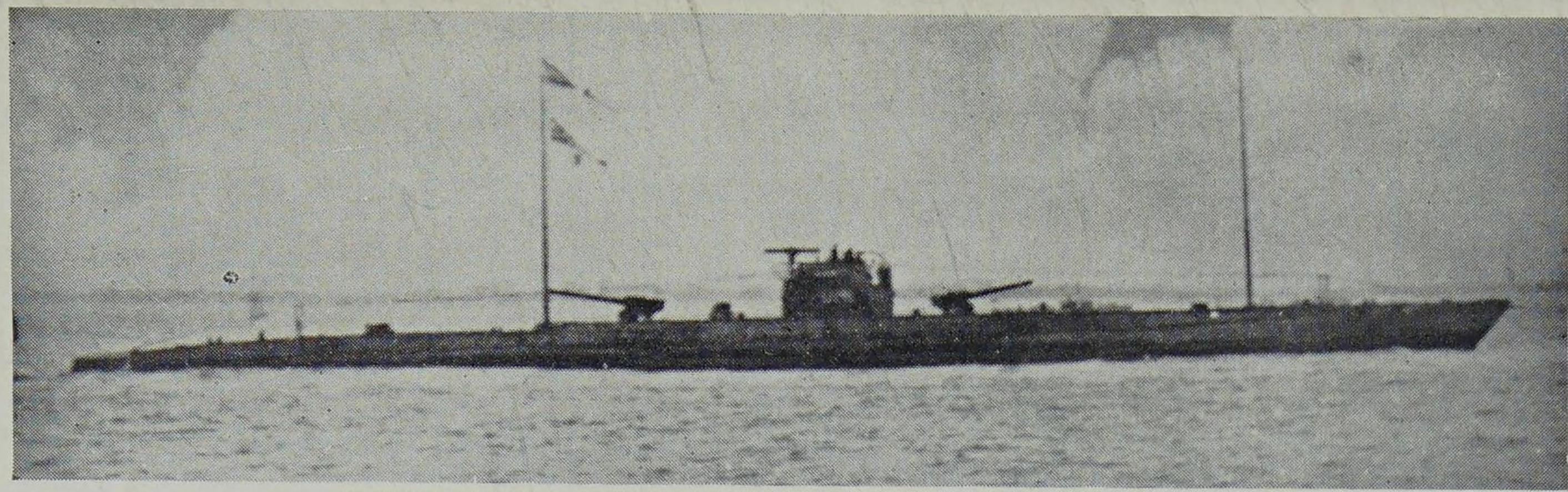
German U-boat U126 taken over by the Royal Navy. [Cozens



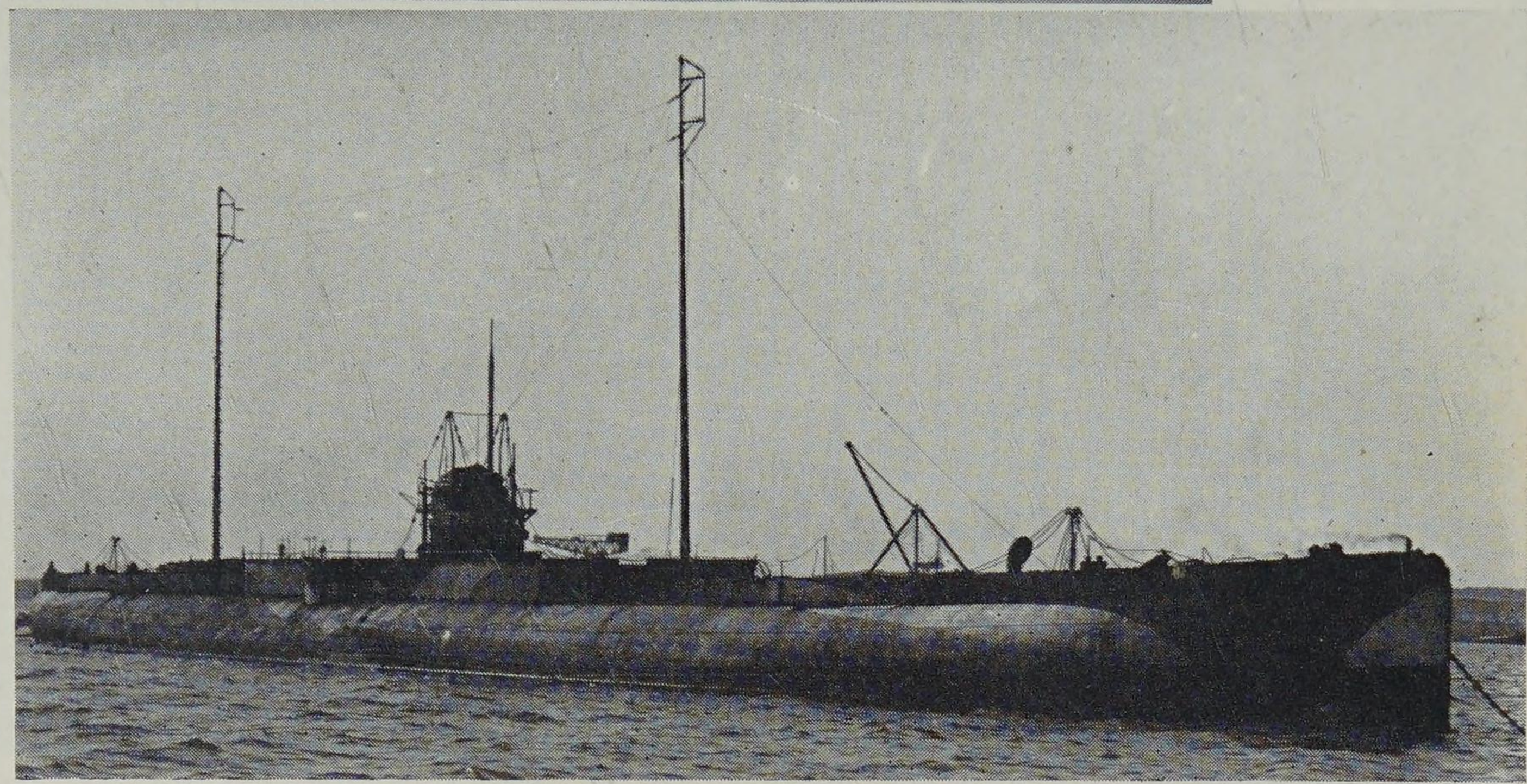
Part of U126. [*Cozens*



German U-boat U135. [*N.P.C.*



Left: German U-boat U141.
[*Cozens*



Right: German U-cruiser U155 (formerly *Deutschland*).
[*H.S. & R.*

U139 CLASS

Length: 311 ft. *Beam:* 29¾ ft. *Displacement:* 1,930/2,483 tons.
Diesel engines*. 2 screws. 3,500/1,780 h.p. 16/8 knots.
Torpedo tubes: 6—19.7 in. (4 bow, 2 stern). *Guns:* 2—5.9 in.
Complement: 62-80.
* Extra battery re-charging set.

Number	Completed	Builder	
U139	1918	Ger.	1918 Became French *Halbronn*, 1935 discarded.
U140	1918	Ger.	1919 To U.S.A., 1921 sunk as target.
U141	1918	Ger.	1918 To U.K., 1923 sold and scrapped.

U142 CLASS

Length: 320 ft. *Beam:* 29¾ ft. *Displacement:* 2,158/2,785 tons.
Diesel engines. 2 screws. 3,500/1,780 h.p. 15.8/7.6 knots.
Torpedo tubes: 6—19.7 in. (4 bow, 2 stern). *Guns:* 2—5.9 in.
Complement: 62-83.

Number	Completed	Builder	
U142	1918	Ger.	1919 Scrapped in Germany.

Sister ships: U143-150 scrapped before completion.

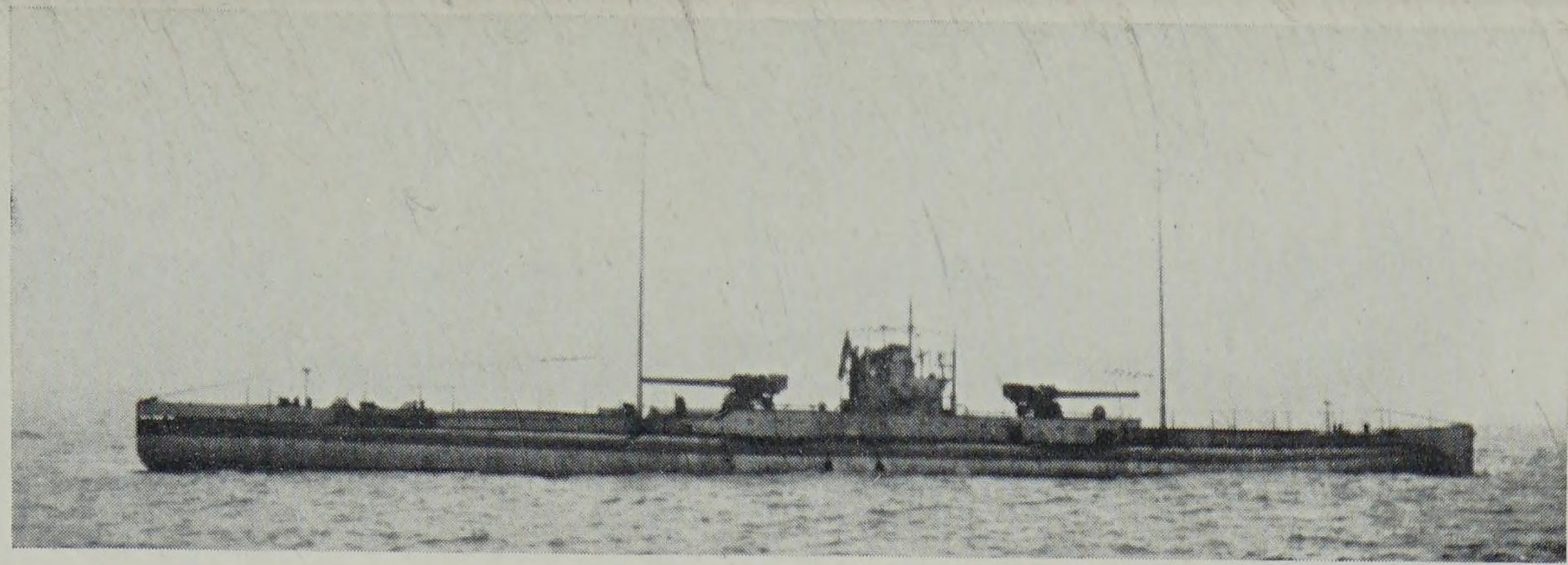
U151 CLASS (ex Mercantile Cruisers)

Length: 213¼ ft. *Beam:* 29¼ ft. *Displacement:* 1,512/1,875 tons.
Diesel engines. 2 screws. 800/800 h.p. 12.4/5.2 knots.
Torpedo tubes: 2—19.7 in. (bow). *Guns:* 2—5.9 in. or 4.1 in.
Complement: 56.

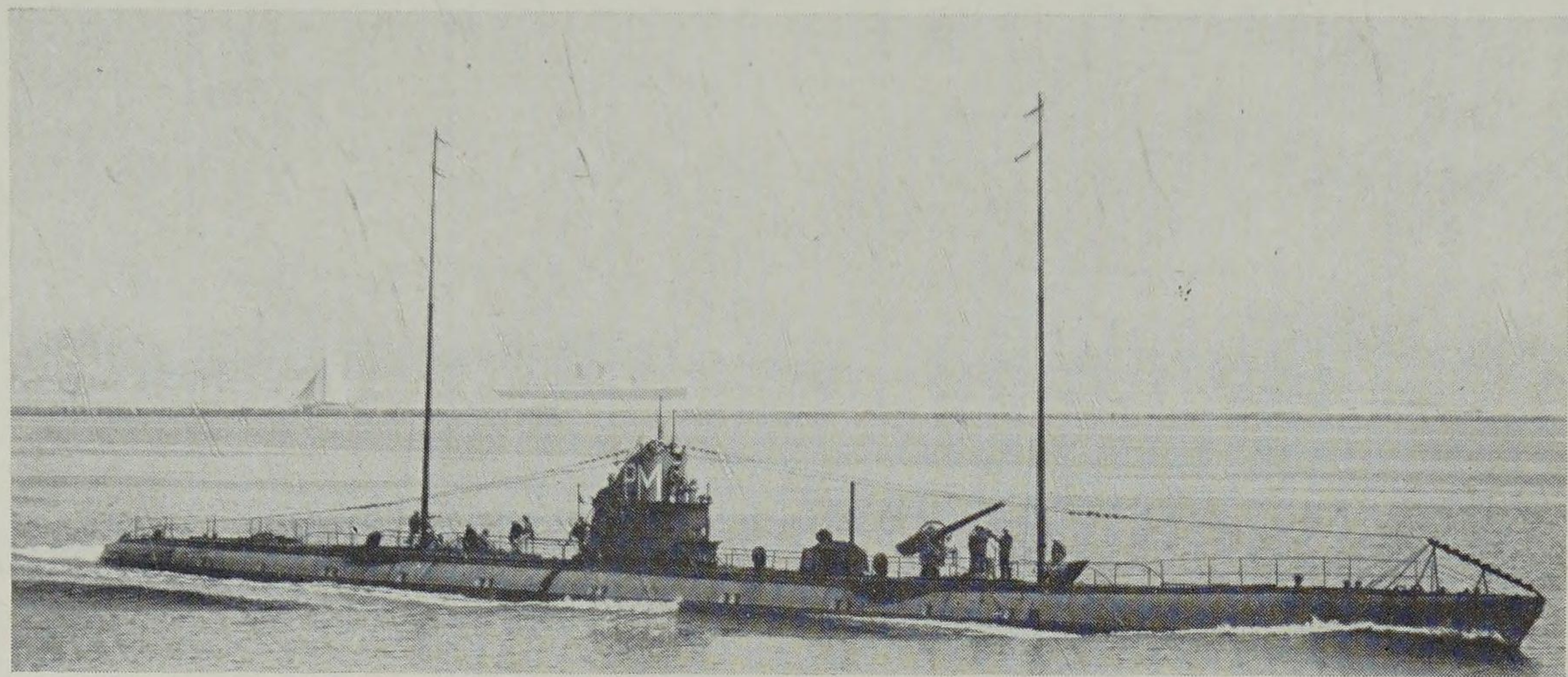
Number	Completed	Builder	
U151	1917	Reh.	1918 To France, 1921 sunk at Cherbourg.
U152	1917	Reh.	1918 To U.K., 1921 sank en route to breakers.
U153	1917	Reh.	1918 To U.K., 1921 sank en route to breakers.
U154	1917	Reh.	1918 Torpedoed by E35 off Cape St. Vincent.
U155	1916	Flen.	1918 To U.K., 1922 scrapped.
U156	1917	Atlas	1918 Mined in North Sea.
U157	1918	Stu./Ger.	1919 To France, 1921 scrapped.

As Merchant-U-boats, *Deutschland* (later U155), made two trade trips to the U.S.A. before 1917. *Oldenburg* became U151 and an eighth ship *Bremen*, damaged on her first voyage, was converted to a surface vessel.

U158, 159 (811/1,034 tons) were scrapped uncompleted in 1919.



Left: German U-cruiser U156.
[*N.M.M. Greenwich*



Right: U162 as French *Pierre Marrast.*
[*N.M.M. Greenwich*

U160 CLASS

Length: 235½ ft. *Beam:* 20⅔ ft. *Displacement:* 821/1,002 tons.
Diesel engines. 2 screws. 2,400/1,200 h.p. 16.2/8.2 knots.
Torpedo tubes: 6—19.7 in. (4 bow, 2 stern). *Guns:* 2—41 in.
Complement: 36-40.

Number	Completed	Builder	
U160	1918	Vul.(B).	1918 To France, 1922 scrapped.
U161	1918	Vul.(B).	1918 To U.K., 1921 stranded on way to breakers.
U162	1918	Vul.(B).	1918 Became French *Pierre Marrast.*
U163	1918	Vul.(B).	1918 To Italy, 1919 scrapped.
U164	1918	Vul.(B).	1918 To U.K., 1922 scrapped.
U165	1918	Vul.(B).	1918 Sunk collision, 1919 raised and scrapped.
U166	1919	Vul.(B).	1919 Became French *Jean Roulier,* 1935 discarded.
U167	1919	Vul.(B).	1919 To U.K., 1920 sold, 1921 scrapped.

Sister ships: U168-172 scrapped uncompleted in 1919.
U173-276 Projected only.

UA (ex Norwegian)

Length: 153¼ ft. *Beam:* 13⅓ ft. *Displacement:* 270/342 tons.
Diesel engines. 2 screws. 700/380 h.p. 14.2/7.3 knots.
Torpedo tubes: 3—17.7 in. (2 bow, 1 stern). *Gun:* 1—2 in. *Complement:* 21.

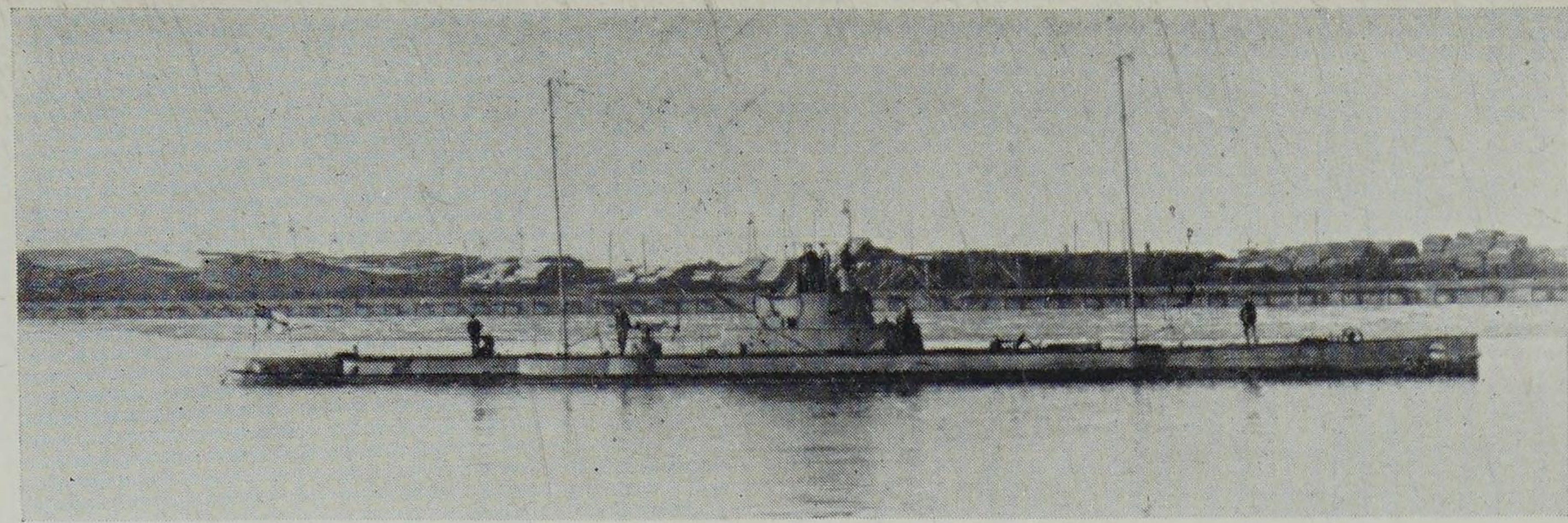
Number	Completed	Builder	
UA	1914	Ger.	1916 Training ship, 1918 to France, 1919-20 scrapped in U.K.

Originally ordered by Norway.

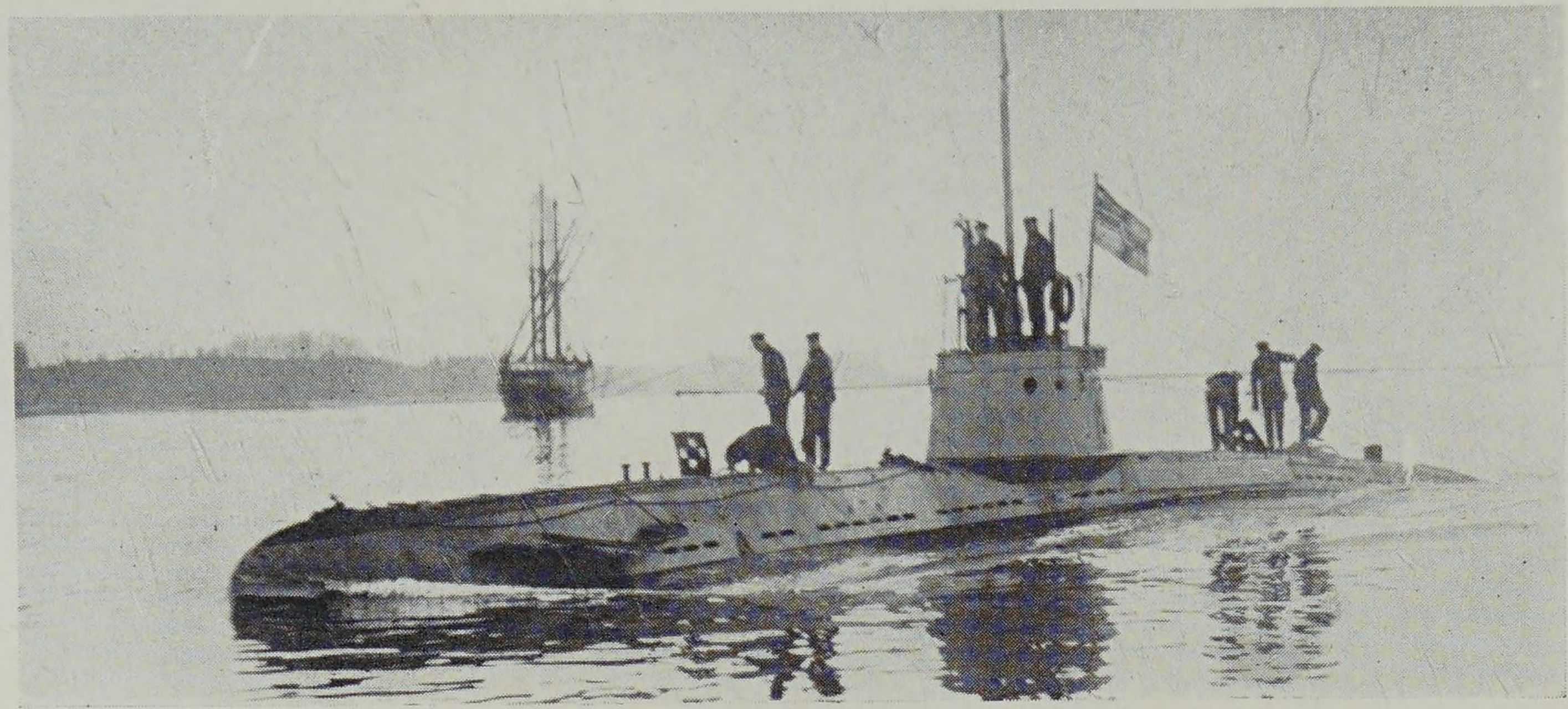
UBI CLASS

Length: 92¼ ft. *Beam:* 9¾ ft. *Displacement:* 127/142 tons.
Heavy oil engine. 1 screw. 60/120 h.p. 6.5/5.5 knots.
Torpedo tubes: 2—17.7 in. (bow). *Complement:* 14.
(1)

Number	Completed	Builder	
UB1	1915	Ger.	1915 To Austria (as U10), 1918 wrecked.
UB2	1915	Ger.	1916 Training ship, 1919 scrapped in Germany.
UB3	1915	Ger.	1915 ' Missing ' in the Aegean.
UB4	1915	Ger.	1915 Sunk by trawler off Yarmouth.
UB5	1915	Ger.	1917 Training ship, 1919 scrapped in Germany.
UB6	1915	Ger.	1917 Stranded in Holland, 1919 to France, 1921 scrapped.
UB7	1915	Ger.	1916 Mined in the Black Sea.
UB8	1915	Ger.	1916 To Bulgaria, 1919 to France, 1921 scrapped.



Left: German U-boat UA.
[*N.M.M. Greenwich*



Right: Small Coastal U-boat UB1.
[*N.M.M. Greenwich*

(2) As above but length: 91½ ft., 7.4/6.25 knots.

Number	Completed	Builder	
UB9	1915	Wes.	1917 Training ship, 1919 scrapped in Germany.
UB10 (ML)	1915	Wes.	1918 Blown up at Bruges on evacuation.
UB11	1915	Wes.	1917 Training ship, 1919 scrapped in Germany.
UB12 (ML)	1915	Wes.	1918 Mined off Heligoland.
UB13	1915	Wes.	1916 Caught in mine-nets off Walcheren.
UB14	1915	Wes.	1915 To Austria as U26, 1919 delivered at Malta, 1920 scrapped.
UB15	1915	Wes.	1915 To Austria as U11, 1919 scrapped at Pola.
UB16 (ML)	1915	Wes.	1918 Torpedoed by E34 off the East Coast.
UB17 (ML)	1915	Wes.	1918 Sunk by H.M.S. *Onslow* in North Sea.

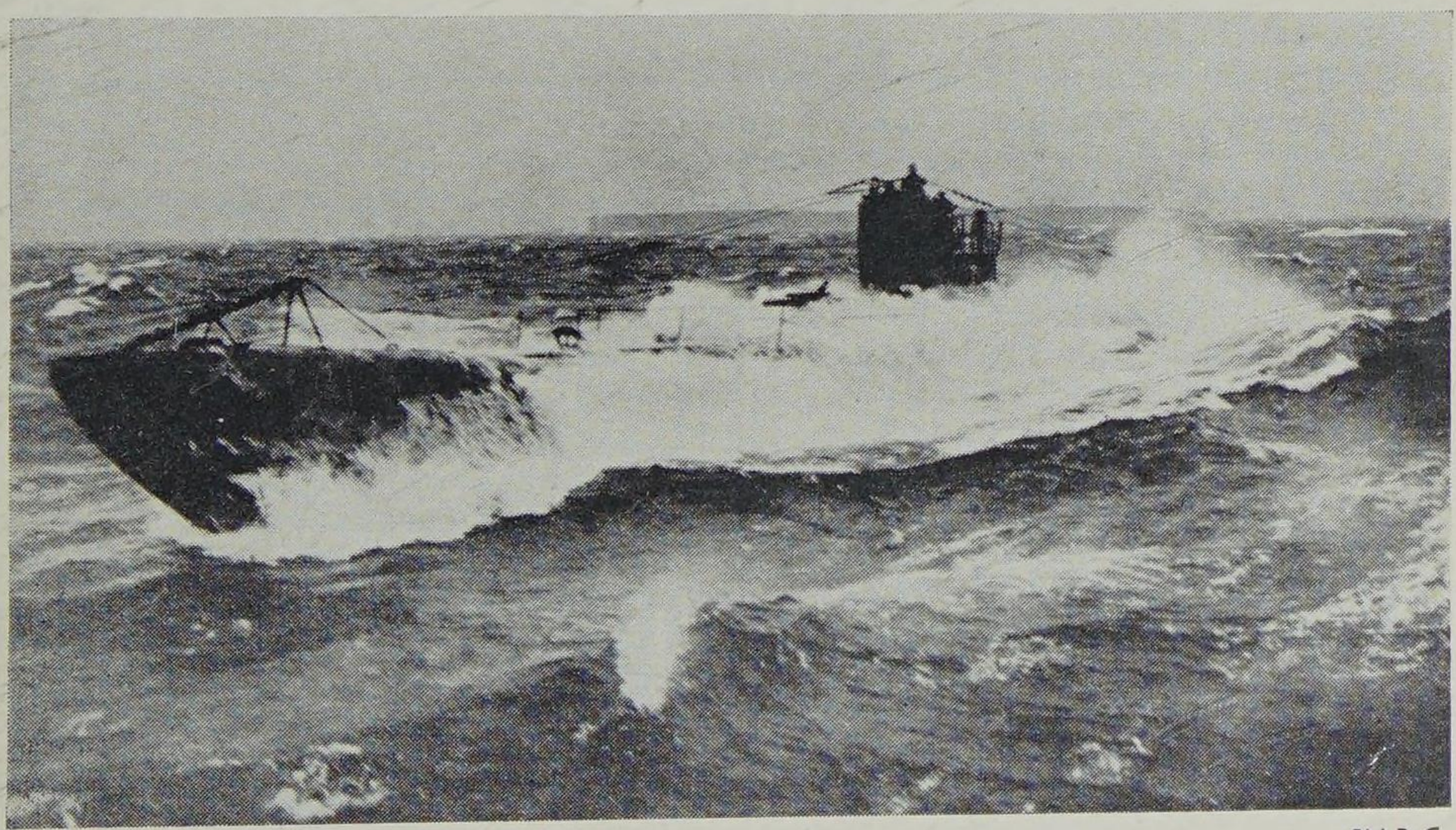
Many of this class were dismantled and sent to Antwerp and Pola for erection Those rebuilt as ML's had their length increased to 105 ft., their displacement to 147/161 tons, had 4 mine chutes and carried 8 mines.

UB II CLASS

Length: 118½ ft. *Beam:* 14¼ ft. *Displacement:* 263/292 tons.
Diesel engines. 2 screws. 284/280 h.p. 9/5.75 knots.
Torpedo tubes: 2—19.7 in. (bow). *Guns:* 1—3.4 in. or 2 in. *Complement:* 23.
(1)

Number	Completed	Builder	
UB18	1915	B.&V.	1917 Mined in English Channel.
UB19	1915	B.&V.	1916 Sunk by Q-ship off Portland Bill.
UB20	1916	B.&V.	1917 Bombed by seaplanes off Flanders.
UB21	1916	B.&V.	1918 To U.K., 1920 sank on way to breakers.
UB22	1916	B.&V.	1918 Mined in Heligoland Bight.
UB23	1916	B.&V.	1917 Interned in Spain, 1919 to France, 1921 scrapped.
UB24	1915	Wes.	1915 Training ship, 1918 to France, 1921 scrapped.
UB25	1915	Wes.	1915 Training ship, 1918 to U.K., 1922 scrapped.
UB26	1916	Wes.	1916 Captured by Allied ships becoming French *Roland Morillot.*
UB27	1916	Wes.	1917 Sunk by H.M.S. *Halcyon* off Harwich.
UB28	1915	Wes.	1915 Training ship, 1918 to U.K., 1919-20 scrapped.
UB29	1916	Wes.	1916 Sunk by H.M.S. *Ariel* near Bishop's Rock.

Small Coastal U-boat UB4. [N.M.M. Greenwich



UB11 Class U-boat off Heligoland. [N.P.C.

(2) As above but length: 121 ft., displacement: 274/305 tons.

Number	Completed	Builder	
UB30	1916	B.&V.	1918 Sunk by trawler off Whitby.
UB31	1916	B.&V.	1918 Sunk by drifters in Dover Straits.
UB32	1916	B.&V.	1917 Bombed by seaplane off Cap Barfleur
UB33	1916	B.&V.	1918 Mined in Dover Straits.
UB34	1916	B.&V.	1918 To U.K., 1922 scrapped.
UB35	1916	B.&V.	1918 Sunk by H.M.S. *Leven* in Dover Straits
UB36	1916	B.&V.	1917 ' Missing ' in English Channel.
UB37	1916	B.&V.	1917 Sunk by Q-ship in English Channel.
UB38	1916	B.&V.	1918 Mined in Dover Straits.
UB39	1916	B.&V.	1917 Sunk by Q-ship off Isle of Wight.
UB40	1916	B.&V.	1918 Blown up at Ostende on evacuation.
UB41	1916	B.&V.	1917 Mined off Scarborough.
UB42	1916	Wes.	1919 Delivered to Malta, 1920 scrapped.
UB43	1916	Wes.	1917 to Austria as U43, 1918 to Italy, 1919 scrapped.
UB44	1916	Wes.	1916 Caught in mine-nets, Straits of Otranto.
UB45	1916	Wes.	1916 Mined in Black Sea, 1936 raised and scrapped.
UB46	1916	Wes.	1916 Mined in the Bosphorus.
UB47	1916	Wes.	1917 to Austria as U47, 1918 to Italy, 1919 scrapped.

UB III CLASS

Length: 182 ft. *Beam:* 19 ft. *Displacement:* 508-520/639-650 tons.
Diesel engines. 2 screws. 1,100/788 h.p. 13.5/7.5 knots.
Torpedo tubes: 5—19.7 in. (4 bow, 1 stern). *Gun:* 1—4.1 in. or 3.4 in.
Complement: 34.

Number	Completed	Builder	
UB48	1917	B.&V.	1918 Blown up at Pola on evacuation.
UB49	1917	B.&V.	1919 To U.K., 1922 scrapped.
UB50	1917	B.&V.	1919 To U.K., 1922 scrapped.
UB51	1917	B.&V.	1919 To U.K., 1922 scrapped.
UB52	1917	B.&V.	1918 Torpedoed by H4 in Otranto Straits.
UB53	1917	B.&V.	1918 Sunk, mine-nets in Otranto Straits.
UB54	1917	Wes.	1918 Sunk by destroyers off East Coast.
UB55	1917	Wes.	1918 Mined in Dover Straits.
UB56	1917	Wes.	1917 Mined in Dover Straits.
UB57	1917	Wes.	1918 Mined off Zeebrugge.
UB58	1917	Wes.	1918 Mined in Dover Straits.
UB59	1917	Wes.	1918 Blown up at Zeebrugge on evacuation.
UB60	1917	Vul.(H).	1918 To U.K., 1921 stranded on way to breakers.
UB61	1917	Vul.(H).	1917 Mined off Terschelling.

UB III CLASS *Continued*

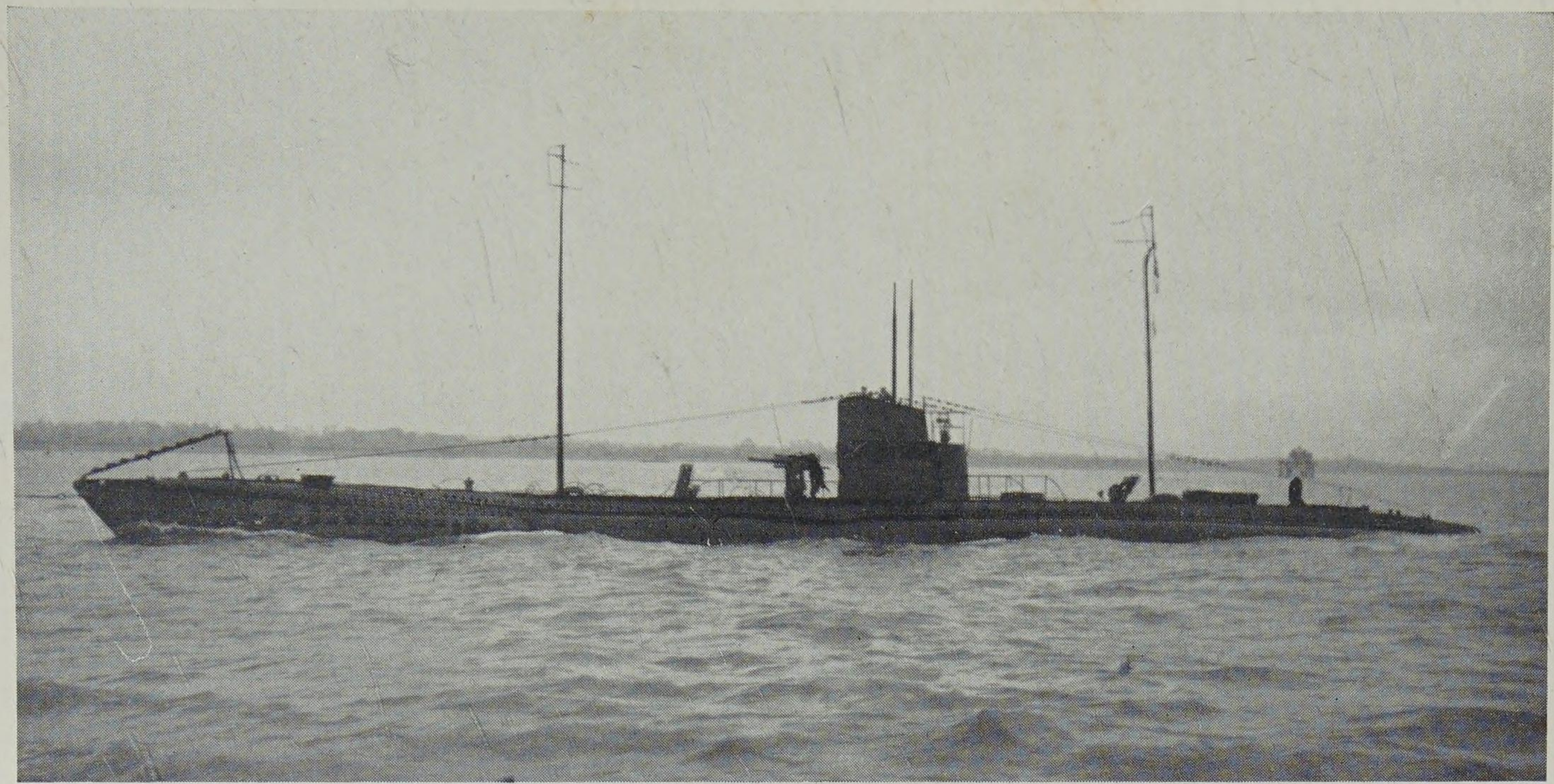
Number	Completed	Builder	
UB62	1917	Vul.(H).	1918 To U.K., 1922 scrapped.
UB63	1917	Vul.(H).	1918 Sunk by trawlers in Firth of Forth.
UB64	1917	Vul.(H).	1918 To U.K., 1920 sold, 1921 scrapped.
UB65	1917	Vul.(H).	1918 Blew up during combat off Cape Clear.
UB66	1917	Ger.	1918 Sunk by H.M.S. *Campanula* off Bizerta.
UB67	1917	Ger.	1918 To U.K., 1922 scrapped.
UB68	1917	Ger.	1918 Damaged in action and scuttled off Malta.
UB69	1917	Ger.	1918 Sunk in explosive sweeps off Bizerta.
UB70	1917	Ger.	1918 Sunk by Allied ships in Mediterranean.
UB71	1917	Ger.	1918 Sunk by M.L.413 in Gibraltar Straits.
UB72	1917	Vul.(H).	1918 Torpedoed by D4 in English Channel.
UB73	1917	Vul.(H).	1918 To France, 1921 scrapped.
UB74	1917	Vul.(H).	1918 Sunk by yacht *Lorna* off Portland.
UB75	1917	B.&V.	1917 Sunk in mine-nets off Flamborough Head.
UB76	1917	B.&V.	1919 To U.K., 1922 scrapped.
UB77	1917	B.&V.	1919 To U.K., 1922 scrapped.
UB78	1917	B.&V.	1918 Rammed by S.S. *Queen Alexandra* in English Channel.
UB79	1917	B.&V.	1919 To U.K., 1922 scrapped.
UB80	1917	Wes.	1919 To Italy and scrapped.
UB81	1917	Wes.	1917 Mined off Isle of Wight.
UB82	1917	Wes.	1918 Sunk by drifters off N. Ireland.
UB83	1917	Wes.	1918 Sunk by destroyers in Pentland Firth.
UB84	1917	Wes.	1918 To France, 1921 scrapped.
UB85	1917	Wes.	1918 Sunk by H.M.S. *Coreopsis* in North Channel.
UB86	1917	Wes.	1918 To U.K., 1921 sold and scrapped.
UB87	1917	Wes.	1918 To France, 1921 scrapped.
UB88	1918	Vul.(H).	1918 To U.S.A., 1921 sunk as target.
UB89	1918	Vul.(H).	1919 Foundered, raised and 1920, scrapped in Holland.
UB90	1918	Vul.(H).	1918 Torpedoed by L12 in the Skagerrak.
UB91	1918	Vul.(H).	1918 To U.K., 1921 scrapped.
UB92	1918	Vul.(H).	1918 To U.K., 1919-20 scrapped.
UB93	1918	Vul.(H).	1918 To U.K., 1922 scrapped.
UB94	1918	Vul.(H).	1918 Became French *Trinite-Schillemans*, 1935 discarded.
UB95	1918	Vul.(H).	1918 To Italy, 1919 scrapped.
UB96	1918	Vul.(H).	1918 To U.K., 1919-20 scrapped.
UB97	1918	Vul.(H).	1918 To U.K., 1921 sold and scrapped.
UB98	1918	Vul.(H).	1918 To U.K., 1920 sold, 1922 scrapped.
UB99	1918	Vul.(H).	1918 Became French *Carissan*, 1935 discarded.
UB100	1918	Vul.(H).	1918 To U.K., 1921 sold, 1922 scrapped in Holland.

Number	Completed	Builder	
UB101	1918	Vul.(H).	1918 To U.K., 1919-20 scrapped.
UB102	1918	Vul.(H).	1918 To Italy, 1919 scrapped.
UB103	1917	B.&V.	1918 Sunk by drifters in Dover Straits.
UB104	1918	B.&V.	1918 Mined in North Sea.
UB105	1918	B.&V.	1919 To U.K., 1922 scrapped.
UB106	1918	B.&V.	1918 To U.K., 1921 sold and scrapped.
UB107	1918	B.&V.	1918 Sunk by trawlers off Scarborough.
UB108	1918	B.&V.	1918 Mined (?) in English Channel.
UB109	1917	B.&V.	1918 Mined in Dover Straits.
UB110	1918	B.&V.	1918 Sunk by H.M.S. *Garry* and ML263 off N.E. Coast.
UB111	1918	B.&V.	1918 To U.K., 1919-20 scrapped.
UB112	1918	B.&V.	1918 To U.K., 1921 sold and scrapped.
UB113	1918	B.&V.	1918 Mined (?) in English Channel.
UB114	1918	B.&V.	1918 To France, 1921 scrapped.
UB115	1918	B.&V.	1918 Sunk by destroyers and trawlers off N.E. Coast.
UB116	1918	B.&V.	1918 Mined off Scapa Flow, 1919 raised and scrapped.
UB117	1918	B.&V.	1918 To U.K., 1919-20 scrapped.
UB118	1918	Wes.	1918 To U.K., 1919 stranded on South Coast.
UB119	1918	Wes.	1918 Mined (?) in North Sea.
UB120	1918	Wes.	1918 To U.K., 1922 scrapped.
UB121	1918	Wes.	1918 To France, 1921 scrapped.
UB122	1918	Wes.	1918 To U.K., 1921 stranded on way to breakers.
UB123	1918	Wes.	1918 Mined in North Sea.
UB124	1918	Wes.	1918 Sunk by destroyers in North Channel
UB125	1918	Wes.	1918 To Japan, as O6, 1921 scrapped.
UB126	1918	Wes.	1918 To France, 1921 scrapped.
UB127	1918	Wes.	1918 Mined in North Sea.
UB128	1918	Wes.	1919 To U.K., 1921 sold and scrapped.
UB129	1918	Wes.	1918 Blown up at Fiume on evacuation.
UB130	1918	Wes.	1918 To France, 1921 scrapped.
UB131	1918	Wes.	1918 To U.K., 1921 sold and scrapped.
UB132	1918	Wes.	1918 To U.K., c.1922 scrapped.

UB133 CLASS

Length: 182¼ ft. *Beam:* 19 ft. *Displacement:* 523-539/646-656 tons.
Diesel engines. 2 screws. 1,100/788 h.p. 12.5/7.5 knots.
Torpedo tubes: 5—19.7 in. (4 bow, 1 stern). *Gun:* 1—4.1 in. *Complement:* 34.

Number	Completed	Builder	
UB133	1919	Ger.	1919 To U.K., 1920 sold, 1922 scrapped.
UB136	1919	Ger.	1919 To U.K., 1920 sold, 1922 scrapped.
UB142	1918	Wes.	1918 To France, 1921 scrapped.



UB111 Class coastal submarine UB122. [I.W.M.

Number	*Completed*	*Builder*	
UB143	1918	Wes.	1918 To Japan, as O7, 1921 scrapped.
UB144	1919	Wes.	1919 T9 U.K., 1920 sold, 1922 scrapped.
UB145	1919	Wes.	1919 To U.K., 1920 sold, 1922 scrapped.
UB148	1918	Wes.	1918 To U.S.A., and sunk as target.
UB149	1918	Wes.	1918 To U.K., 1922 scrapped.
UB150	1919	Wes.	1919 To U.K., 1922 scrapped.
UB154	1919	Vul.(H).	1919 To France, 1921 scrapped.
UB155	1919	Vul.(H).	1919 Became French *Jean Corre*.

Sister ships: UB134, 135, 137-141, 146, 147, 151-153 were scrapped uncompleted in 1919, as were UB156-169 if begun. Later ships UB170-249 were cancelled.

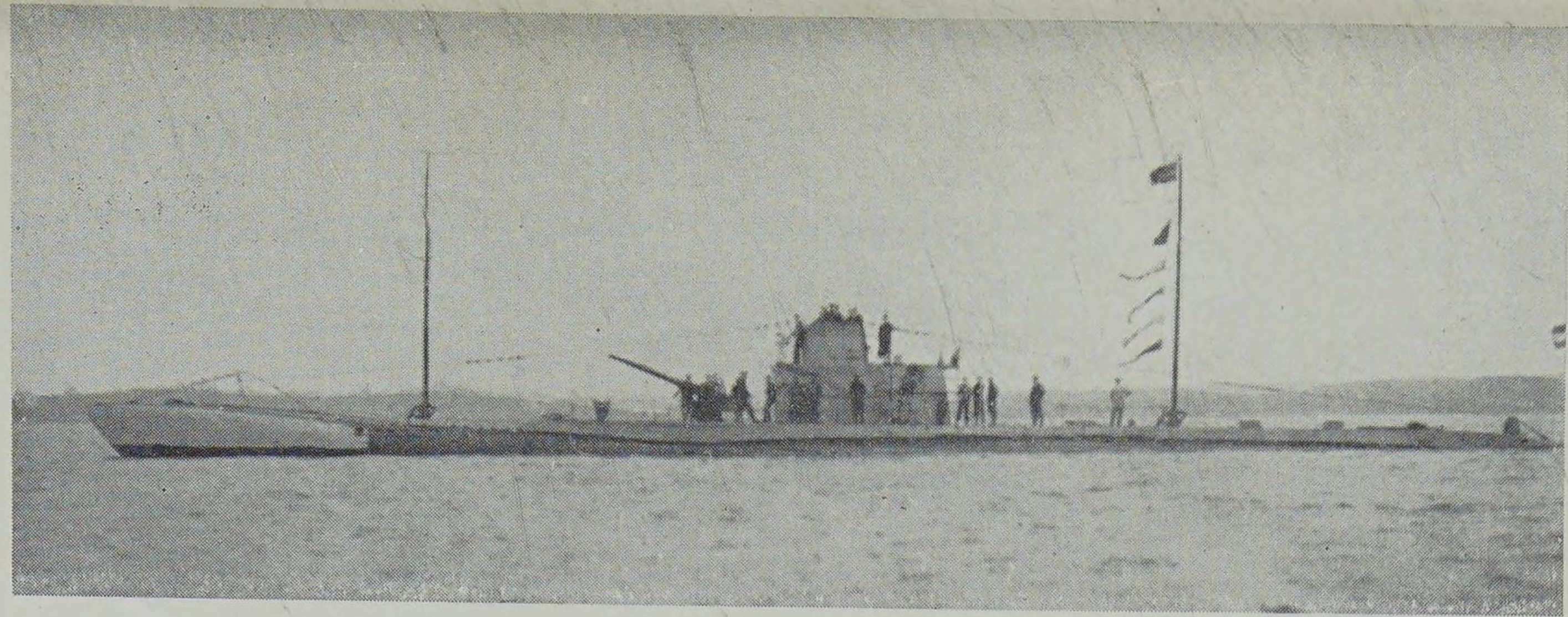
UC I CLASS

Length: 111½ ft. *Beam:* 10⅓ ft. *Displacement:* 168/183 tons. Heavy oil engine. 1 screw. 90/175 h.p. 6.5/5.25 knots. (No T. tubes). *Mine tubes:* 6 (vertically inclined). *Mines:* 12. *Complement:* 14-16.

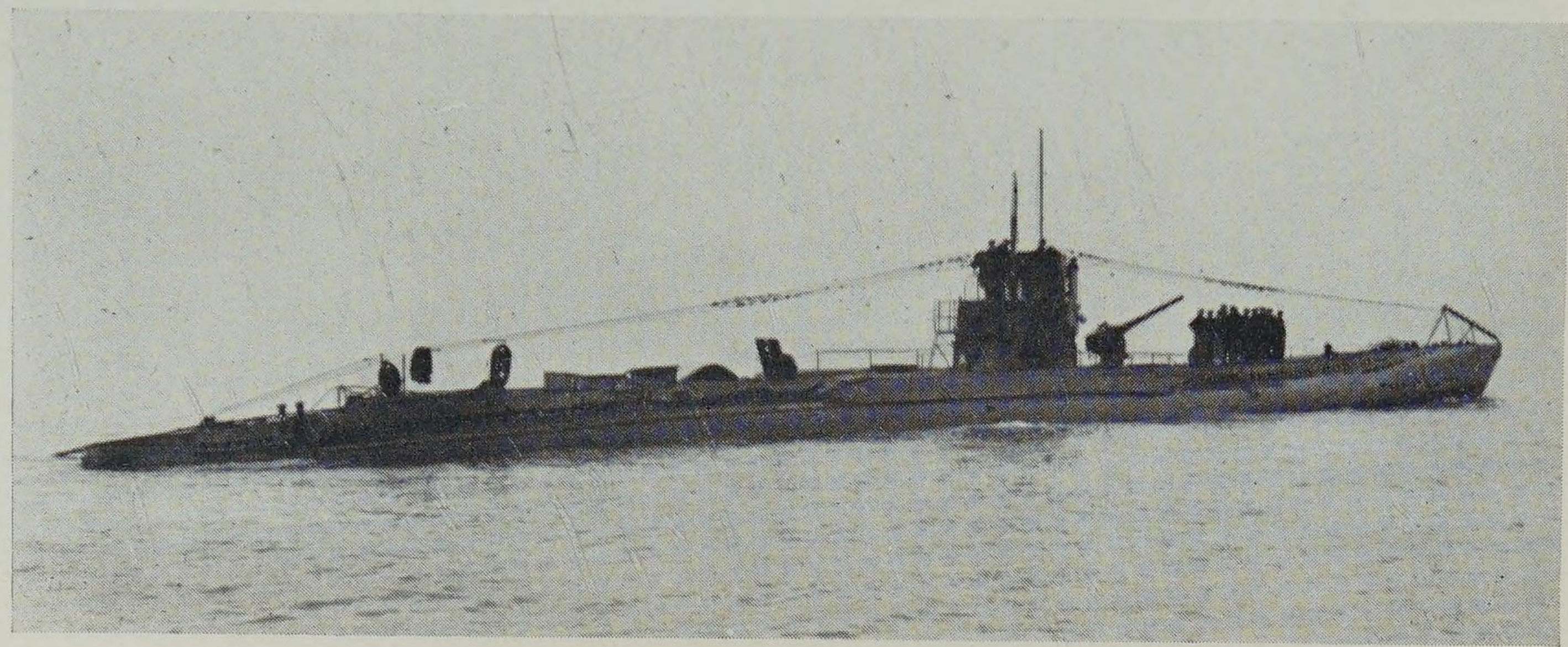
Number	*Completed*	*Builder*	
UC1	1915	Vul.(H).	1917 Bombed by seaplanes near Sunk L.V.
UC2	1915	Vul.(H).	1915 Rammed by S.S. *Cottingham* off Yarmouth.
UC3	1915	Vul.(H).	1916 Sunk in mine-nets off Norfolk.
UC4	1915	Vul.(H).	1918 Blown up at Bruges on evacuation.
UC5	1915	Vul.(H).	1916 Stranded off Harwich and captured, 1923 sold at Montreal.
UC6	1915	Vul.(H).	1917 Bombed by seaplane near Sunk L.V.
UC7	1915	Vul.(H).	1916 Sunk by m.b. *Salmon* off Lowestoft.
UC8	1915	Vul.(H).	1915 Stranded on Terschelling, becoming Dutch M1, 1932 discarded.
UC9	1915	Vul.(H).	1915 Blown up by own mines near Longsands L.V.
UC10	1915	Vul.(H).	1916 Torpedoed by E54 off Schouwen.
UC11	1915	Wes.	1918 Mined off Harwich.
UC12	1915	Wes.	1916 Blown up by own mines off Taranto.
UC13	1915	Wes.	1915 Stranded in Black Sea and destroyed.
UC14	1915	Wes.	1917 Mined off Zeebrugge.
UC15	1915	Wes.	1916 Mined in Black Sea.

UC II CLASS

Length: 162-173 ft. *Beam:* 17 ft. *Displacement:* 400-434/480-511 tons. Diesel engines. 2 screws. 500-600/460-620 h.p. 11.5-12/6.6-7.4 knots. *Torpedo tubes:* 3—19.7 in. (2 bow above water, 1 stern). *Gun:* 1—3.4 in. *Mine tubes:* 6 (vertically inclined). *Mines:* 18. *Complement:* 26-28.

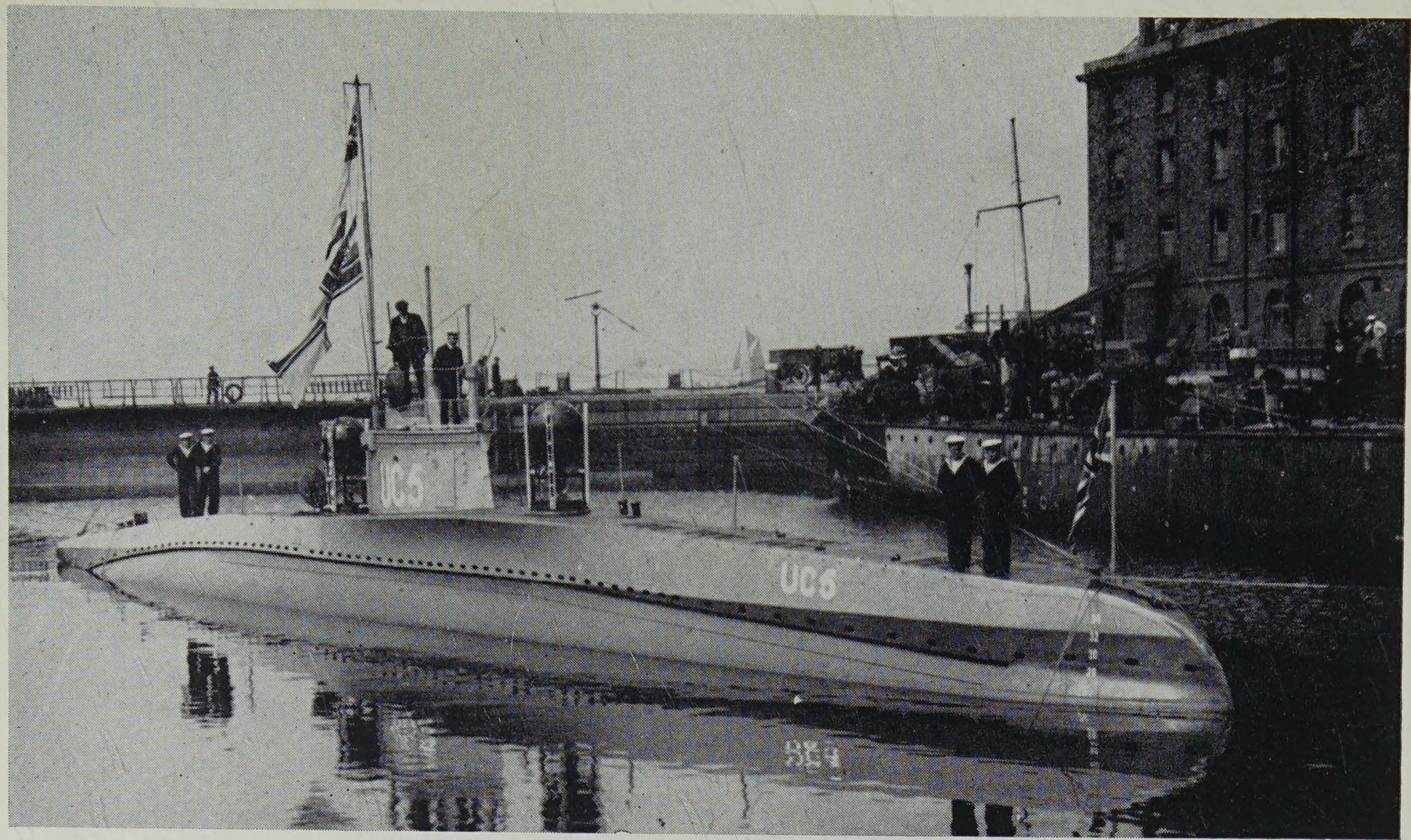


Left: UB133 Class U-boat.
[N.M.M. Greenwich



Right: UB133 Class U-boat.
[I.W.M.

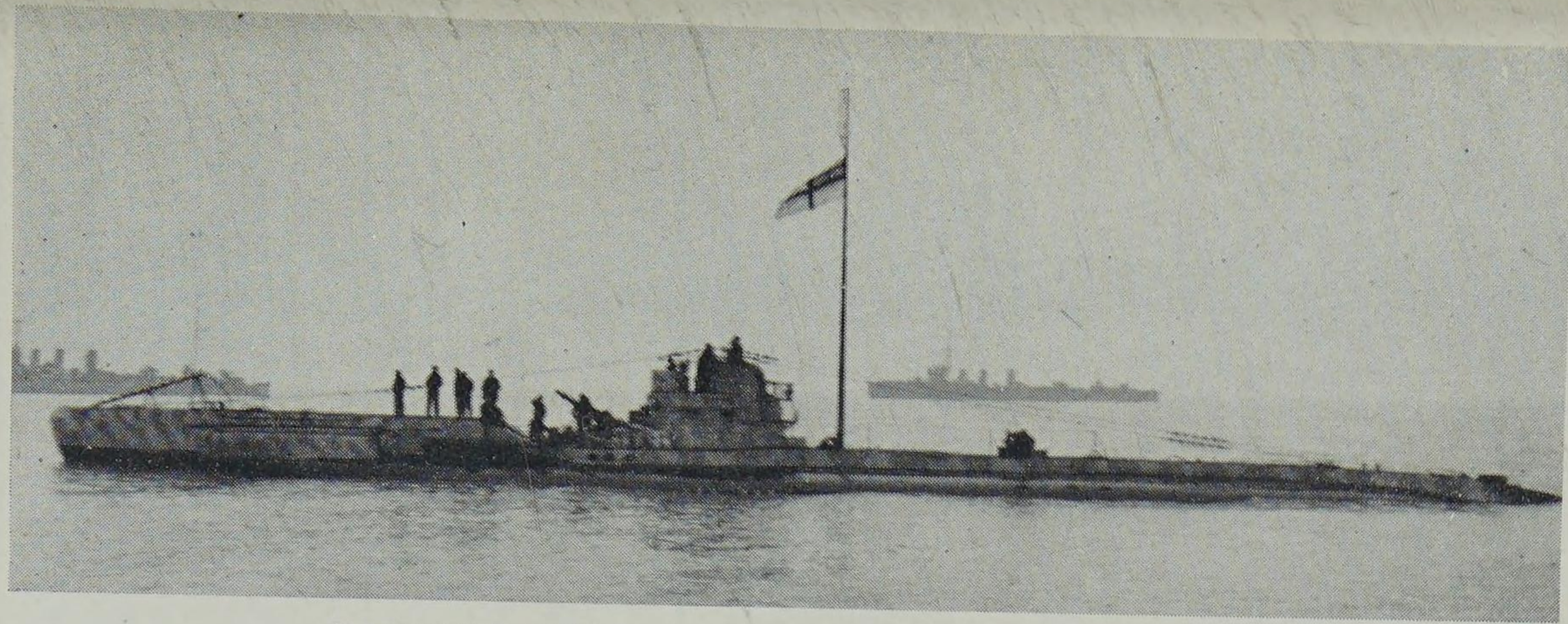
UC1 Class U-boat. [I.W.M.



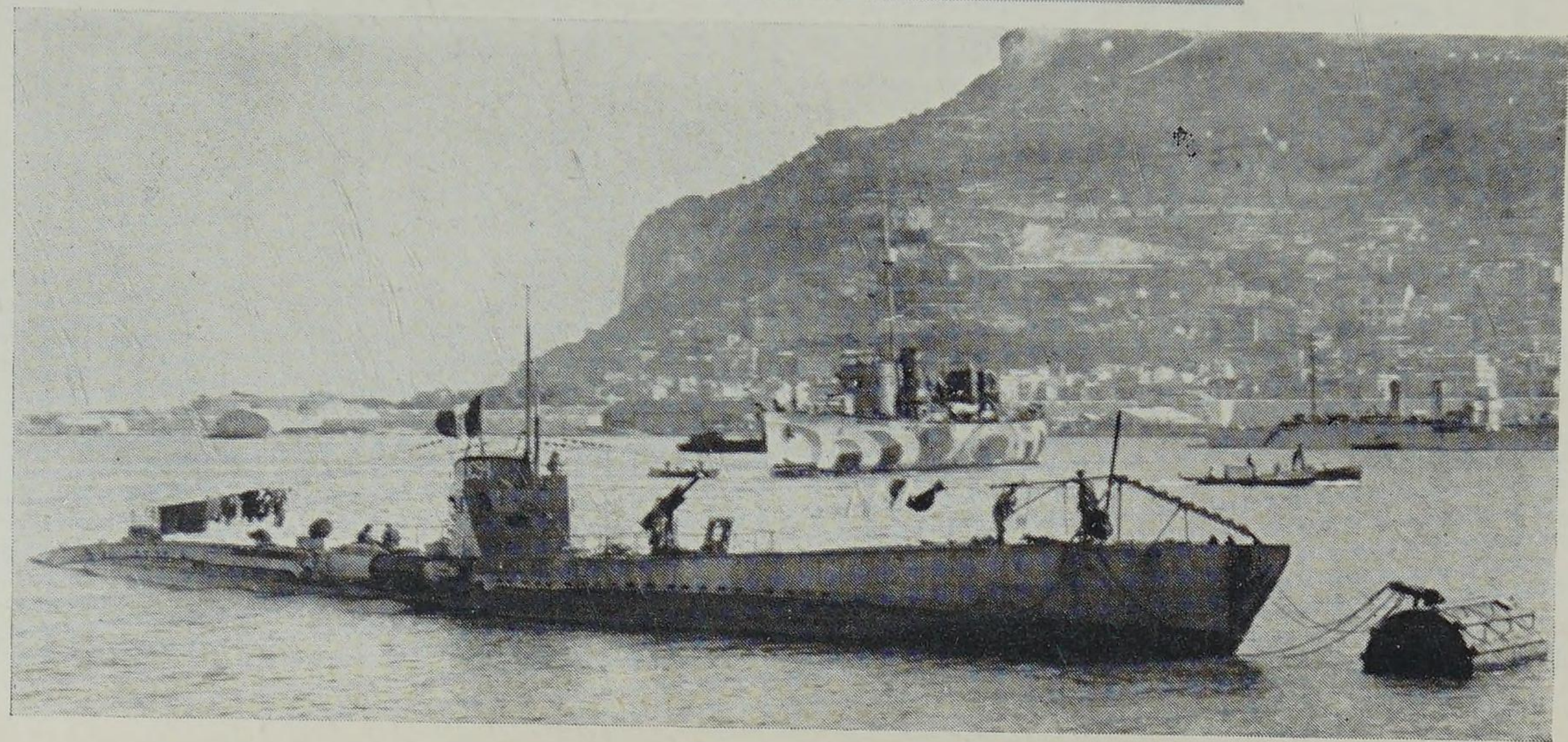
UC1 Class U-boat, UC5. [I.W.M.

UC II CLASS *Continued*

Number	Completed	Builder	
UC16	1916	B.&V.	1917 Sunk in explosive sweeps in English Channel.
UC17	1916	B.&V.	1918 To U.K., 1919-20 scrapped.
UC18	1916	B.&V.	1917 Sunk in explosive nets off Whitby.
UC19	1916	B.&V.	1916 Sunk by H.M.S. *Llewellyn* in Dover Straits.
UC20	1916	B.&V.	1919 To U.K., 1919-20 scrapped.
UC21	1916	B.&V.	1917 Sunk in mine-nets off N. Foreland.
UC22	1916	B.&V.	1919 To France, 1921 scrapped.
UC23	1916	B.&V.	1919 To France, 1921 scrapped.
UC24	1916	B.&V.	1917 Torpedoed by French sub. *Circe* off Cattaro.
UC25	1916	Vul.(H).	1918 Blown up at Pola on evacuation.
UC26	1916	Vul.(H).	1917 Sunk by destroyers in Thames Estuary.
UC27	1916	Vul.(H).	1919 To France, 1921 scrapped.
UC28	1916	Vul.(H).	1919 To France and sunk as target.
UC29	1916	Vul.(H).	1917 Sunk by Q-ship off S. Ireland.
UC30	1916	Vul.(H).	1917 Mined in North Sea.
UC31	1916	Vul.(H).	1918 To U.K., 1922 scrapped.
UC32	1916	Vul.(H).	1917 Blown up by own mines off Sunderland.
UC33	1916	Vul.(H).	1917 Sunk by PC61 off S. Ireland.
UC34	1916	B.&V.	1918 Blown up at Pola on evacuation.
UC35	1916	B.&V.	1918 Sunk by French ship *Ailly* off Sardinia.
UC36	1916	B.&V.	1917 Bombed by seaplane off Hinder L.V.
UC37	1916	B.&V.	1919 Delivered at Malta, 1920 scrapped
UC38	1916	B.&V.	1917 Sunk by French destroyer *Lansquenet* in Ionian Sea.
UC39	1916	B.&V.	1917 Sunk by H.M.S. *Thrasher* off Flamborough Head.
UC40	1916	Vul.(H).	1919 Sank en route to surrender.
UC41	1916	Vul.(H).	1917 Sunk by trawlers in the Firth of Tay.
UC42	1916	Vul.(H).	1917 Blown up by own mines off Cork.
UC43	1916	Vul.(H).	1917 Torpedoed by G13 off Shetland Is.
UC44	1916	Vul.(H).	1917 Blown up by own mines off Waterford.
UC45	1916	Vul.(H).	1918 To U.K., 1919-20 scrapped.
UC46	1916	Wes.	1917 Sunk by H.M.S. *Liberty* in Dover Straits.
UC47	1916	Wes.	1917 Sunk by P57 off Flamborough Head.
UC48	1916	Wes.	1918 Damaged and interned at Ferrol, 1919 scuttled.
UC49	1916	Ger.	1918 Sunk by destroyers in North Sea.
UC50	1916	Ger.	1918 Sunk by H.M.S. *Zubian* in English Channel.
UC51	1917	Ger.	1917 Sunk by H.M.S. *Firedrake* off Lowestoft.
UC52	1917	Ger.	1919 To U.K., 1919-20 scrapped.
UC53	1917	Ger.	1918 Blown up at Pola on evacuation.



Left: UC11 Class U-boat (probably UC31).
[I.W.M.



Right: UC111 Class U-boat UC94 after surrender to Italy.
[N.M.M Greenwich

UC II CLASS *Continued*

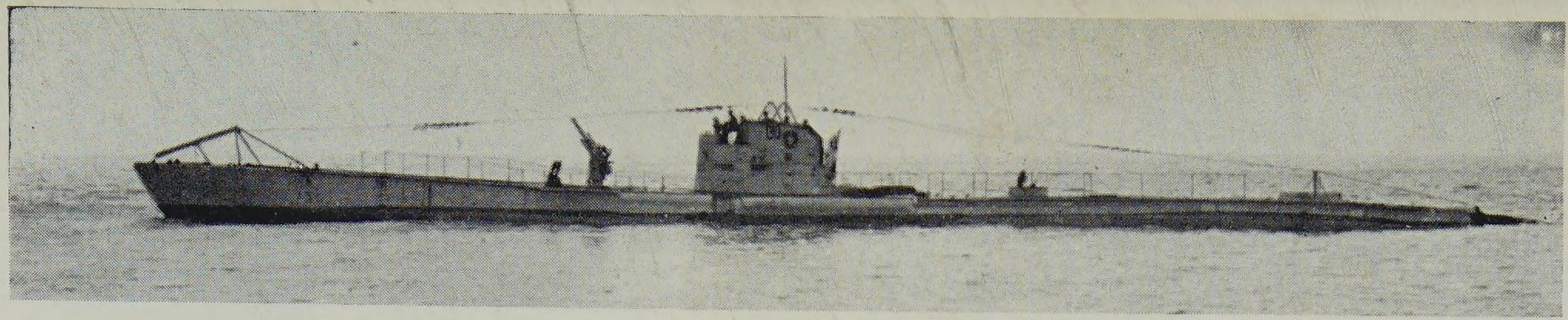
Number	Completed	Builder	
UC54	1917	Ger.	1918 Blown up at Trieste on evacuation.
UC55	1916	Dz.Dy.	1917 Sunk by destroyers off Lerwick.
UC56	1916	Dz.Dy.	1918 Damaged and interned at Santander, 1919 to France, 1923 scrapped.
UC57	1917	Dz.Dy.	1917 Mined (?) in Gulf of Finland.
UC58	1917	Dz.Dy.	1918 To France, 1921 scrapped.
UC59	1917	Dz.Dy.	1918 To U.K., 1919-20 scrapped.
UC60	1917	Dz.Dy.	1919 To U.K., 1921 scrapped.
UC61	1916	Wes.	1917 Stranded and blown up near Cape Griz Nez.
UC62	1917	Wes.	1917 Torpedoed by E45 off Lowestoft.
UC63	1917	Wes.	1917 Torpedoed by E52 in Dover Straits.
UC64	1917	Wes.	1918 Mined in Dover Straits.
UC65	1916	B.&V.	1917 Torpedoed by C15 in Dover Straits.
UC66	1916	B.&V.	1917 Sunk by trawlers off The Lizard.
UC67	1916	B.&V.	1919 To U.K., 1919-20 scrapped.
UC68	1916	B.&V.	1917 Torpedoed by C7 off Schouwen.
UC69	1916	B.&V.	1917 Accidentally rammed by U96 off Barfleur.
UC70	1916	B.&V.	1918 Sunk by H.M.S. *Ouse* and seaplane off Whitby.
UC71	1916	B.&V.	1919 Sank en route to surrender.
UC72	1916	B.&V.	1917 Bombed by seaplane near Sunk L.V.
UC73	1916	B.&V.	1919 To U.K., 1919-20 scrapped.
UC74	1916	Vul.(H).	1919 To France, 1921 scrapped.
UC75	1916	Vul.(H).	1918 Sunk by H.M.S. *Fairy* off Yorkshire.
UC76	1916	Vul.(H).	1918 To U.K., 1919-20 scrapped.
UC77	1916	Vul.(H).	1918 Sunk by trawlers in Dover Straits.
UC78	1917	Vul.(H).	1918 Sunk by drifters in Dover Straits.
UC79	1917	Vul.(H).	1918 Mined in Dover Straits.

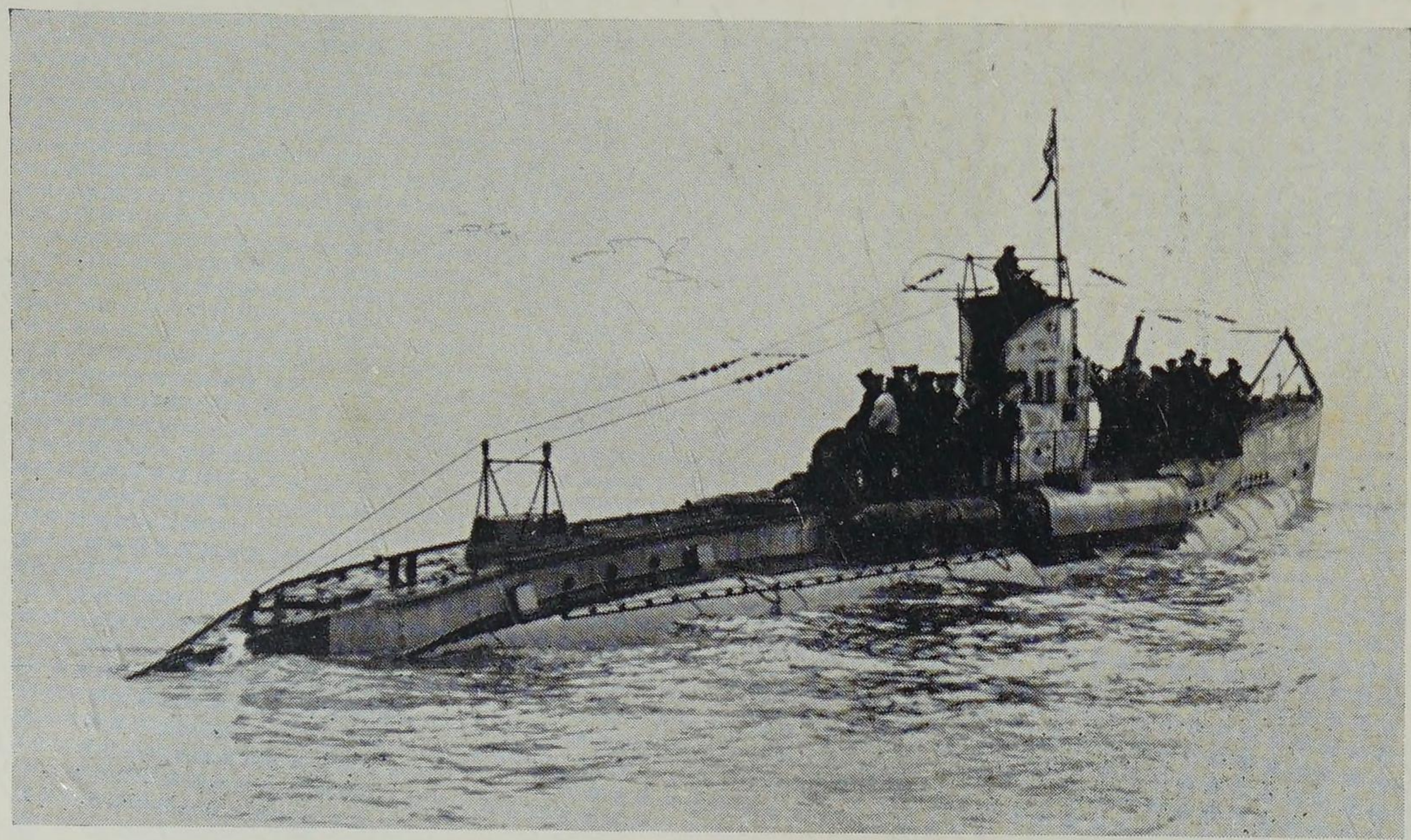
Various batches of this class differed slightly, particularly in the shape of the bows.

UC III CLASS

Length: 185⅓ ft. *Beam:* 18¼ ft. *Displacement:* 491/571 tons.
Diesel engines. 2 screws. 600/770 h.p. 11.5/6.6 knots.
Torpedo tubes: 3—19.7 in. (2 side, above water, 1 stern). *Gun:* 1—4.1 in.
Mine tubes: 6 (vertically inclined). *Mines:* 14. *Complement:* 32.

Number	Completed	Builder	
UC90	1918	B.&V.	1918 To Japan, as O4, 1921 scrapped.
UC91	1918	B.&V.	1919 Sank en route to surrender.
UC92	1918	B.&V.	1918 To U.K., 1921 scrapped.
UC93	1918	B.&V.	1918 To Italy, 1919 scrapped.
UC94	1918	B.&V.	1918 To Italy, 1919 scrapped.
UC95	1918	B.&V.	1918 To U.K., 1920 sold, 1922 scrapped.
UC96	1918	B.&V.	1918 To U.K., 1919-20 scrapped.





Above: UC111 Class U-boat UC100.

[*N.M.M. Greenwich*

UC III CLASS *Continued*

Number	*Completed*	*Builder*	
UC97	1918	B.&V.	1918 To U.S.A., 1921 sunk as target in Lake Michigan.
UC98	1918	B.&V.	1918 To Italy, 1919 scrapped.
UC99	1918	B.&V.	1918 To Japan, as O5, 1921 scrapped.
UC100	1918	B.&V.	1918 to France, 1921 scrapped.
UC101	1918	B.&V.	1918 To U.K., 1921 sold, 1922 scrapped in Holland.
UC102	1918	B.&V.	1918 T. U.K., 1921 sold, 1922 scrapped in Holland.
UC103	1919	B.&V.	1918 To France, 1921 scrapped.
UC104	1918	B.&V.	1918 To France, 1921 scrapped.
UC105	1918	B.&V.	1918 To U.K., 1922 scrapped.
UC106	1919	B.&V.	1919 To U.K., 1920 sold.
UC107	1919	B.&V.	1919 To France, 1921 scrapped.
UC108	1919	B.&V.	1919 To U.K., 1920 sold.
UC109	1919	B.&V.	1919 To U.K., 1920 sold.
UC110	1919	B.&V.	1919 To U.K., 1921 sunk.
UC111	1919	B.&V.	1919 To U.K., 1920 sold.
UC112	1919	B.&V.	1919 To U.K., 1920 sold.
UC113	1919	B.&V.	1919 To U.K., 1921 scrapped.
UC114	1919	B.&V.	1919 To U.K., 1921 scrapped.

Sister ships: UC80-89, 115-118 scrapped on the stocks uncompleted.
UC119-138 (511/582 tons), scrapped on the stocks, UC139-192 cancelled.

Surrendered U-boats at Harwich 1918. [I.W.M.

KT-337-402